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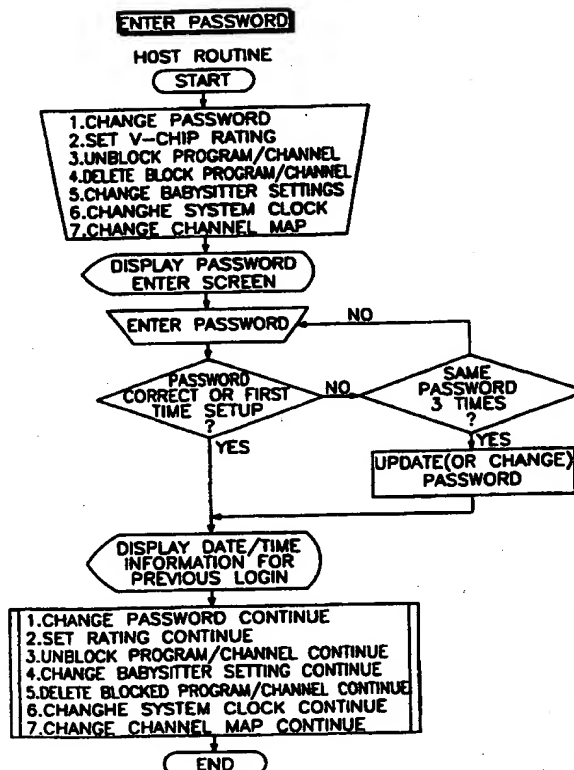
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(54) Title: APPARATUS AND METHOD FOR PARENTAL CONTROL USING V-CHIP PLUS+ AND MASTER PASSWORD

(57) Abstract

A method and apparatus for exercising access control over television programs using a parental control interface that has different functions are provided. The method requires a password to enter into a master mode for obtaining unlimited access to all the functions of the parental control interface. Once in the master mode, the user may enter a criterion for blocking a television program from being viewed or recorded or the user can override an already blocked television program. Once a master password is entered, the system is in a Master Password mode until the TV is turned off, the user exits the VChip Plus+ mode, or a certain time delay expires. If a user, not in the master mode, attempts to watch or record a program that meets the blocking criterion and the program does not meet the overriding criterion, a prompt is provided to the user to enter the password. Upon entering a correct password, the program is unblocked.



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1 APPARATUS AND METHOD FOR PARENTAL CONTROL USING V-CHIP PLUS+  
AND MASTER PASSWORD

5 FIELD OF THE INVENTION

The present invention relates generally to television systems, and more particularly, to parental control of television receivers using a master password to effectuate a variety of access control functions.

10 BACKGROUND OF THE INVENTION

A system has been proposed in the United States and endorsed by the U.S. Congress commonly known as the V-Chip System. The system involves using the vertical blanking interval ("VBI") of a standard television signal to include a code which indicates one or more rating factors for the program then being aired. These rating factors can include ratings similar to those promulgated by the Motion Picture Association of America (e.g. G, PG, PG-13, R, NC-17) and numerical ratings of individual categories of program nature such as violence, language, nudity and sexual content. A consumer V-Chip television system would allow a consumer to program his or her television system to exclude programs according to their preferred levels of one or more of these rating criteria or alternatively could be programmed to permit only programs having certain levels of content according to these rating categories.

20 A problem with the V-Chip system, as recognized in an article by T. Atherton, entitled "Living With the V-Chip," The Ottawa Citizen, Entertainment, Section F, pp. F1- F2 (Saturday, March 9, 1996), is that the perceived utility of the V-Chip system to a consumer depends on whether the consumer agrees with the subjective ratings contained in the VBI for most, if not all, programs. The author of this article, who purportedly has been involved in a "Beta-test" of the V-Chip system in Canada, gives two illustrative examples in his article. First, "trash-talk" shows are rated at the lowest possible level for violence and the next lowest level for language and sex categories, even though these shows often contain verbal violence, physical confrontations and graphic verbal sexual discussions. Second, utilizing the overall rating system to exclude this type of program, such as excluding all programs with a rating above PG, results in the blocking out of many programs which the author considers appropriate for viewing and does not wish blocked out, such as the movie Forrest Gump.

30 Although some people may disagree with the author's judgment of the relative harm and worth of particular television programs, the article illustrates, at least, that regardless of how much the ratings providers will be able to adjust and fine tune their ratings system, based upon

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1 the majority of consumers' wishes, there will remain a significant portion of the consumer public who will disagree with the rating systems and think that whatever exclusion programming they do will block out desirable programs while not blocking out undesirable programs.

5 Another problem with the existing parental control systems is that the users (parents) have to re-enter a password every time they block/unblock a program or invoke a related function. This is time consuming and will quickly become annoying as well. Yet Another problem with the parental control systems using passwords is that the users (parents) forget the password. This may lead to service calls to equipment manufacturer, adding to the cost of support. Accordingly, an improvement on the V-Chip system access control is needed.

### 10 SUMMARY OF THE INVENTION

The present invention is directed to an apparatus and method that satisfies this need. There is, therefore provided, according to a preferred embodiment, an apparatus for parental control of a television receiver. A memory provides storage of information relating to television programming. A microprocessor generates a blocking command as a function of the information stored in memory including a master password. A blocking circuit, which passes a baseband television video signal to a television display, provides blocking of the video signal in response to the blocking command. The blocking can be overridden by a user-provided list in the memory.

20 It is understood that other embodiments of the present invention will become readily apparent to those skilled in the art from the following detailed description, wherein it is shown and described only embodiments of the invention by way of illustration of the best modes contemplated for carrying out the invention. As will be realized, the invention is capable of other and different embodiments and its several details are capable of modification in various other respects, all without departing from the spirit and scope of the present invention. Accordingly, the drawings and detailed description are to be regarded as illustrative in nature and not as restrictive.

### 25 DESCRIPTION OF THE DRAWINGS

30 These and other features, aspects, and advantages of the present invention will become better understood with regard to the following description, appended claims, and accompanying drawings where:

FIG. 1 is a flow diagram of the parental control apparatus used with the V-Chip system in accordance with a preferred embodiment of the present invention;



1           FIG. 2 is an electrical block diagram of the parental control apparatus in accordance with a preferred embodiment of the present invention;

          FIG. 3 is an electrical block diagram of the parental control apparatus used in a cable system in accordance with a preferred embodiment of the present invention;

5           FIG. 4 is an electrical block diagram of a parental control apparatus in combination with a V-Chip system employing VCR Plus+ and automated channel mapping in accordance with a preferred embodiment of the present invention;

          FIG. 5 is an electrical block diagram of a parental control apparatus in combination with VCR Plus+ integrated circuit retrofitted into an existing V-Chip system;

10           FIG. 6 is a top plan view of a remote controller for operating the system of FIG. 4 in accordance with a preferred embodiment of the present invention;

          FIG. 7 is a television screen displaying a Channel Surf Menu formatted in accordance with a TV mode of the present invention;

15           FIG. 8 is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

          FIG. 9 is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

          FIG. 10 is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

20           FIG. 11 is a television screen displaying a VCR/V-Chip Plus+ Review List formatted in accordance with a TV mode of the present invention;

          FIG. 12 is a television screen displaying a Channel Surf Menu with sub-menu prompts formatted in accordance with a TV mode of the present invention;

25           FIG. 13 is a television screen displaying a V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

          FIG. 14 is a television screen displaying a V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

          FIG. 15 is a television screen displaying a V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

30           FIG. 16 is a television screen displaying a VCR/V-Chip Plus+ Main Screen formatted in accordance with a TV mode of the present invention;

          FIG. 17 is a television screen displaying a VCR/V-Chip Plus+ Main Screen formatted in accordance with a TV mode of the present invention;

1           FIG. 18 is a television screen displaying a Confirmation Screen formatted in accordance with a TV mode of the present invention;

          FIG. 19 is a television screen displaying a VCR/V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

5           FIG. 20 is a television screen displaying a VCR/V-Chip Plus+ Setup Screen formatted in accordance with a TV mode of the present invention;

          FIG. 21 is a block diagram of a user interface screen map in accordance with an embodiment of the present invention;

10           FIG. 22 is a television screen displaying a V-Chip Plus+ Features Screen formatted in accordance with a TV mode of the present invention;

          FIG. 23 is a television screen displaying a V-Chip Set-Up Screen with the V-Chip function disabled formatted in accordance with a TV mode of the present invention;

15           FIG. 24 is a television screen displaying the V-Chip Set-Up Screen with the V-Chip function enabled formatted in accordance with a TV mode of the present invention;

          FIG. 25 is a television screen displaying a V-Chip Plus+ Screen for selecting television programs formatted in accordance with a TV mode of the present invention;

20           FIG. 26 is a television screen displaying a V-Chip Plus+ Screen for programming the frequency of the selected television program formatted in accordance with a TV mode of the present invention;

          FIG. 27 is a television screen displaying a V-Chip Plus+ Selections Review List for blocked television programs formatted in accordance with a TV mode of the present invention;

          FIG. 28 is a television screen displaying a Record/Watch Screen for selecting television programs formatted in accordance with a TV mode of the present invention;

25           FIG. 29 is a television screen displaying a Record/Watch Screen for programming the frequency of the selected television programs to be recorded formatted in accordance with a TV mode of the present invention;

30           FIG. 30 is a television screen displaying a Record/Watch SCREEN for programming the frequency of the selected television programs to be watch formatted in accordance with a TV mode of the present invention;

          FIG. 31 is a television screen displaying a V-Chip Plus+ Selections Review List for recorded television programs formatted in accordance with a TV mode of the present invention;

          FIG. 32 is a television screen displaying a V-Chip Plus+ Selections Review List for watched television programs formatted in accordance with a TV mode of the present invention;

1 FIG. 33 is a television screen displaying a Babysitting Screen formatted in accordance with a TV mode of the present invention;

FIG. 34 is a television screen displaying a Babysitter Program Review Screen formatted in accordance with a TV mode of the present invention;

5 FIG. 35 is a television screen displaying a Channel Surf Screen set for Babysitter selection formatted in accordance with a TV mode of the present invention;

FIG. 36 is a television screen displaying a Channel Surf Screen set for blocking the tuned channel formatted in accordance with a TV mode of the present invention;

10 FIG. 37 is a television screen displaying a Channel Surf Screen set for unblocking the tuned channel formatted in accordance with a TV mode of the present invention;

FIG. 38 is a television screen displaying a Channel Surf Screen set for reviewing the V-Chip Plus+ selections formatted in accordance with a TV mode of the present invention;

FIG. 39 is a flow diagram for a preferred embodiment of the password operation;

15 FIGS. 40-65 depict the operation of the VChip Plus+ and Parental Control, including selection and deletion for blocking and unblocking television programs based on different criteria in a GUIDE mode (GUIDE Plus+);

FIG. 66 is a display screen displaying the Password Dialog Box; and

FIGS. 67-72 are display screens displaying the Password Setup process.

## 20 DETAILED DESCRIPTION

A preferred embodiment of the present invention is a combination of the V-Chip system and a parental control system more oriented around programming by a user for blocking and enabling particular television programs. Such a parental control system is described in U.S. Patent No. 5,382,983, which is hereby incorporated by reference as if set forth in full herein. The preferred embodiment adds functionality which allows the two systems to work together to form a system which is an improvement over either system. In the preferred embodiment, the user is allowed to override the operation of the V-Chip system for particular programs contained in user programmable enable override lists and blocking override lists. The parental control functions are accessed and selected in two different modes based on the preference of the user. In the TV mode, a variety of interactive television screens display functions and user choices using text and graphics. In the GUIDE mode, the function and choices are made available to the user through menus in a program guide context.

Turning to FIG. 1, a flow chart of the operation of this override system is shown. In block 1, the V-Chip system operates as originally designed: a program is tuned, resulting in an output

1 indicating that either the program should be blocked or should not be blocked, according to the  
user's programming of the V-Chip system. If, according to the V-Chip system, the program  
should be blocked, the Yes Path from block 1 is followed to block 2. In block 2, the program  
5 being tuned is checked against a list of programs which have been specifically enabled by the user  
called the enable override list. If the program being tuned does not appear on the enable override  
list, the No Path out of block 2 is followed to block 3 in which the program being tuned is  
blocked. If, on the other hand, it is found in block 2 that the program being tuned is contained  
in the enable override list, then the Yes Path out of block 2 is followed to block 4 which enables  
10 the program to be tuned.

If the V-Chip system outputs a signal that the program is not to be blocked pursuant to  
the user's programming of the V-Chip system, the No Path out of block 1 is followed to block 5.  
In block 5, the program to be tuned is compared against a override list to block particular  
programs (the "blocking override list") in a similar manner as is performed in block 2 for the  
15 enable override list. If the program to be tuned is found to be contained in the blocking override  
list, the Yes Path out of block 5 is followed to block 6 and the program being tuned is blocked.  
If the program being tuned is not contained in the blocking override list in block 5, then the No  
Path from block 5 is followed to block 4, in which case the program is allowed to be tuned.

The blocking override list and enable override list may be defined in a number of ways.  
20 One way would be to define programs by channel, date, start time and length (or ending time).  
Thus, a clock and a link to the tuner would be employed to determine whether the program being  
tuned falls within any of the sets of channel, date, time and length information contained in either  
of the override lists.

Alternatively, the lists could consist of compressed codes such as those described in U.S.  
25 Patent No. 5,335,079. A particular implementation of this type of compressed codes are  
PlusCode™ numbers used by Gemstar Development Corporation's VCRPlus+® systems that  
presently appear in television calendars and may be used to enter the selected programs, rather  
than using the more laborious and time consuming approach of inputting the uncompressed  
channel, date, time and length of the program that is selected.

30 Alternatively, the lists could be composed of the titles of television programs desired to  
be on the override lists. These titles could be compared against title information broadcast in the  
VBI with each program as part of the V-Chip coding information, using the XDS system or other  
similar system. Alternatively, the titles could be compared to a database which relates the  
channel, date, time, length to program titles, such as that contained in many electronic television  
35 guides.

1 A problem that arises in implementing the system described in FIG. 1 is that the blocking  
override list and the enable override list can be, and in most cases will be, very cumbersome to  
create. One solution to this problem is using a system similar to that described in co-pending U.S.  
5 application 08/031,246, filed March 12, 1993, which is hereby incorporated by reference as if fully  
set forth herein. With this system, a user would call a representative on the telephone and relate  
various selection criteria that are important to the user to the representative. These selection  
criteria may include television channels, times of day, program titles, program subject matter  
categories, and actors and actresses appearing in the programs. The representative would have  
10 access to an extensive centralized computerized database which would include all of this type of  
data for each television program scheduled to be broadcast. In addition, this extensive database  
could include a variety of additional rating systems other than those provided by the broadcasters  
in conjunction with the V-Chip system. Any of a variety of third parties might provide such  
ratings such as religious organizations, newspapers and rating services targeted to particular  
15 segments of the user public. Based upon the selection criteria provided by the user, the  
representative's computer downloads the data to program the user's system, by telephone, VBI,  
or other available data path.

In another alternative embodiment, a database similar to the extensive centralized database  
described above, and containing the same types of ratings information, including third party  
20 ratings, may be stored locally in the user's system. One of the ways this embodiment would  
become feasible is if the system is combined with a locally stored electronic program guide which  
already stores the channel, date, time, length, title, category and descriptions of a large number  
of future scheduled television programs.

In yet another alternative embodiment, in addition to ratings prepared by the Motion  
Picture Association of America and the television broadcasters, the ratings of third parties are  
25 included within the V-Chip data along with an identification of the third party ratings providers,  
allowing the user to choose the rating provider which most closely matches their own values.

A preferred embodiment of an override system for use with the V-Chip system described  
above is shown in FIG. 2. A multichannel radio frequency (RF) television signal from a cable feed  
30 is connected to the input of a cable box 10, which has a channel changing control. The output of  
cable box 10, which is a single channel RF television signal at the frequency of the user selected  
channel, is coupled to television drive circuitry 12. The output of the television drive circuitry 12  
is connected by a transmission blocking circuit 14 to a television display 16. Blocking circuit 14  
could be a conventional analog signal transmission gate, or any other similar device known in the  
35 art.

1 For the purpose of describing the operation of the override system, it is assumed that the television signal of each channel carried by the cable feed contains supplemental data, including channel identification, such as HBO, CNN, or NBC. Preferably, the channel identification is embedded in the VBI of the signal of each channel in an XDS format.

5 The output of the television drive circuitry 12 is also connected to the input of a VBI decoder 18, which strips the XDS signal from the baseband television signal. The output of VBI decoder 18, which includes a data signal representative of the channel identification of the channel to which the cable box 10 is tuned, is coupled to a microprocessor 20, the output of which controls the blocking circuit 14. The microprocessor 20 is coupled to a RAM 22.

10 The programs to be selectively blocked are stored in RAM 22. For each program the date, time, channel and program length are stored in RAM 22 in a stack arrangement as described in U.S. Patent No. 5,382,983 ("the '983 patent") and co-pending U.S. application 08/684,678, the disclosures of which are hereby incorporated by reference as if set forth in full herein. The program blocking data base stored in RAM can be generated in a number of different ways. One way is to transmit groups of program data consisting of date, time, channel, and length content according to a customized rating service, as composed for example by a religious group, newspaper, or political association, and to download such data to RAM 22 from the VBI of the television signal or a telephone line. (See for example the above referenced '983 patent.) The viewer can call up an on-screen menu of choices of customized rating services that are transmitted in the VBI or telephone line, key in the selected service, and command the microprocessor 20 to download the group of program data corresponding to the selected service. Another way is to key in the data of the individual programs through a remote controller. A third way is to select the programs with a cursor from an on screen electronic program guide ("EPG"), in which the EPG data base is used both to determine the programs to be blocked and the programs to be viewed or recorded. In any case, the microprocessor 20 continuously monitors the output of a real time clock in the microprocessor 20, and the channel identification of the channel to which cable box 10 is tuned, which is recovered by VBI decoder 18 or by monitoring the tuner and using a channel map. These monitored attributes are compared with the data of the program blocking database. Preferably, this is accomplished by arranging the data base in a stack in RAM 22 as described in the '983 patent such that the top of the stack is the next program telecast to be blocked. When a match is found, the microprocessor 20 actuates the blocking circuit 14, thereby preventing the TV display 16 from showing the program.

35 When the override system is used in conjunction with the V-Chip system, a code is also included in the VBI which indicates one or more rating factors for the program then being aired.

1 In this embodiment, the user programs the television system to exclude programs according to one or more of these rating criteria. The user selections are stored in RAM 22, and compared with the code transmitted in the VBI. In the event an excluded program is detected by the  
5 microprocessor 20, via the VBI decoder 18, an enable override list stored in RAM 22 is consulted. The blocking circuit 14, under microprocessor control, prevents the excluded program from being presented to the TV display 16 if the program is not contained in the enable override list. Conversely, if the program currently being aired is not excluded under the rating criteria established by the user, a blocking override list stored in RAM 22 is checked by the  
10 microprocessor 20. The blocking circuit 14, under microprocessor control, allows the program to pass to the TV display 16 if the program is not contained in the blocking override list.

15 In the described embodiment where the television programs comprising the blocking override list and the enable override list are defined by channel, date, start time and length (or ending time), or through the use of compressed codes such as those described in U.S. Patent No. 5,335,079, an alternative arrangement is necessary to accommodate the addition of a cable box or video cassette recorder ("VCR").

20 With conventional cable box or VCR hook-ups, a cable box or VCR is connected to the front end of the television receiver. The cable box, or VCR, has a tunable bandpass filter for tuning the desired channel. The television signal from the tuned channel is modulated onto a fixed carrier frequency, by way of example channel 3, and coupled to the television receiver. The television receiver is tuned to the carrier frequency output of the cable box, or VCR, regardless of the particular channel selected. Since the television receiver is always tuned to the fixed frequency, the microprocessor of FIG. 2 will be unable to ascertain when a blocked or selected television program is selected at the cable box, or VCR.

25 Turning to FIG. 3, a preferred embodiment of the present invention is shown which accommodates a system employing both a cable box and a VCR implemented with a low cost mechanization using a simple switch S1. The VCR tuning issue is resolved by connecting the video input of the VCR 23 to the video output of the TV tuner 24, which is always tuned to a parentally enabled program. There is no reason for the VCR 23 to have broadband input.

30 With respect to cable box tuning, the cable box 26 is used only for tuning scrambled programs. During setup, the user identifies the scrambled (premium) channels in his or her cable lineup. This can be automated or performed manually. In this embodiment, the scrambled program providers will transmit their names (HBO ESPN, etc.) in the VBI of the television signal. Accordingly, when a scrambled channel is selected by the user, the cable box 26 is tuned to the  
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respective channel, and the VBI is scanned for the name, via VBI decoder 28. If the name cannot be identified, the channel is blocked.

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VCR recording may also be controlled by providing the VCR video input with the same signal that is provided to the display 30 by the TV tuner 24. This signal has already been processed to insure that it contains a program that has been authorized. Hence, the user can only record authorized programs.

10  
In operation, when a user requests a non-scrambled channel, the microprocessor 32 checks to see (from setup table) if the requested channel is designated as a scrambled channel, and also checks to see (from PlusCode table) if this channel is unblocked for the particular time slot. If the television channel is unblocked and non-scrambled, switch S1 is set to position 2 and the TV tuner 24 is tuned to the requested channel. If the requested channel is to be blocked, S1 is set to position 4, so the TV tuner 24 has no input. The user may also record the displayed program (but no other program since the VCR video input comes from the TV tuner output).

15  
If the user requests a scrambled channel, the microprocessor 32 checks to see if the requested channel is designated as a scrambled channel, and also checks to see (from PlusCode table) if this channel is unblocked for the particular time slot. If the television channel is unblocked and scrambled, S1 is set to position 3, and the cable box 26 is tuned to the requested channel. The VBI decoder 28 monitors the cable box output, looking for the channel name in the VBI (broadcast say every minute). If a name is found, it is compared to the channel name in the channel setup table. If a match is detected, the TV tuner 24 is tuned to channel 3, and the program is displayed. If no match is detected, S1 is switched to position 4, and the display 30 is blanked. Thus, if the user tries to manually change the cable box channel, the VBI name check will fail and S1 will be switched to position 4 to blank the display. The user may also record the displayed program (but no other program since the VCR video input comes from the TV tuner output).

25  
If the user requests to play a tape in the VCR, S1 is switched to position 1, and the TV tuner 24 is tuned to channel 3. Note that in position 1, the VCR has no RF/video input. Hence the user cannot use the VCR tuner.

30  
Turning to FIG. 4, a detailed electrical diagram of a preferred embodiment of the present invention is shown incorporating the V-Chip system with the override system ("V-Chip Plus+ system"). Preferably, the V-Chip Plus+ system is responsive to compressed codes for creating the override lists, such as those described in U.S. Patent No. 5,335,079, and includes automatic channel mapping capability. Specifically, a TV tuner 34 is positioned at the front end of the television receiver for passing a selected channel of a multichannel RF television signal. The TV

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1 tuner 34, which can be any conventional tuner in the art, should provide amplification,  
downconversion to an intermediate frequency ("IF") and demodulation, as well as frequency  
tuning. The TV tuner 34 is coupled to television drive circuitry 36 which provides the signal  
5 processing required to amplify and downconvert the IF signal to a baseband television video  
signal. The output of the television drive circuitry 36 is connected to a blocking circuit 38. The  
blocking circuit 38 could be a conventional analog signal transmission gate, or any other similar  
device known in the art. The output of the blocking circuit 38 is connected to a TV display 42  
10 through a video mixer 40 for selectively displaying the television program currently being  
broadcast on the selected channel.

15 The TV tuner 34 is tuned to the selected channel by a microprocessor 44. A viewer input  
device 46, preferably in the form of a remote infrared ("IR") controller, is coupled to the  
microprocessor 44 to provide viewer control of the television channels. The viewer input device  
46 also allows the viewer to remotely program the V-Chip Plus+ system to exclude programs  
according to one or more rating factors, as well as compiling or modifying the V-Chip Plus+  
20 override lists. When the viewer wishes to review the particular ratings set in the V-Chip Plus+  
system or the V-Chip Plus+ override lists, the microprocessor 44 retrieves the appropriate  
information from RAM 48 and couples it to the video processor 50, where the information is  
formatted for display. Preferably, the information stored in the video processor 50 is a bit map  
of what is displayed on the TV display 42. The video processor 50 is connected to the video  
25 mixer 40. The video mixer 40 outputs the information as an overlay on the television program  
currently being viewed, although it will be understood by those skilled in the art that the  
information from the video mixer 40 could be presented to the TV display 42 as a window in the  
television program or as a full screen display instead of the television program.

30 Using the viewer input device 46 in conjunction with the information presented to the TV  
display, the viewer programs the V-Chip Plus+ system to exclude programs according to one or  
more rating factors. Preferably, the viewer input device 46 allows manipulation of the V-Chip  
Plus+ rating system and the V-Chip Plus+ override lists by moving a cursor on the TV display 42  
and inputting discrete commands. Cursor control is achieved by coupling the microprocessor 44  
35 to the video processor 50 through to a cursor position register 52.

Viewer edits to the V-Chip Plus+ override lists presented to the TV display 42 are  
preferably accomplished using compressed codes such as those described in U.S. Patent  
No. 5,335,079. A G-code decoder 54 is employed to process the compressed codes. If the  
microprocessor 44 determines that a G-code has been received from the viewer input device 46,  
35 then the G-code will be sent to the G-code decoder 54 for decoding. The G-code decoder 54

1 converts the G-code into channel, date, time and length ("CDTL") information which is used by  
the microprocessor 44 to override the V-Chip Plus+ rating system for individually selected  
television programs. Preferably, the V-Chip Plus+ system is integrated with Gemstar  
5 Development Corporation's VCRPlus+® system so that the CDTL information can be selectively  
used not only to create the V-Chip Plus+ override lists, but to activate a video cassette recorder  
("VCR") 55 to record a selected television program corresponding to the CDTL information  
stored in RAM 48 as described in detail in U.S. Patent No. 5,335,079 which is hereby  
incorporated by reference as if set forth in full herein. The CDTL information is stored in RAM  
10 48 in a stack arrangement as described in U.S. patent 5,382,983.

The V-Chip Plus+ system is implemented by decoding the VBI of a television signal. A  
VBI decoder 56 connected to the output of the television drive circuitry 36 extracts the XDS  
signal from the baseband television signal. The output of the VBI decoder 56, which includes one  
or more rating factors for the television program currently broadcast, is coupled to the  
15 microprocessor 44. These rating factors extracted from the VBI of the television signal are  
compared with the viewer programmed rating factors in RAM 48 by the microprocessor 44. In  
the event that the microprocessor 44 determines that the television program currently broadcast  
should be blocked based on the programmed rating factors, the enable override list stored in RAM  
48 is consulted. The microprocessor 44 will actuate the blocking circuit 38 to block the currently  
20 broadcast television program from the TV display 42 if the television program is not contained  
in the enable override list. Conversely, if the television program currently broadcast should be  
televised based on the programmed rating factors stored in RAM 48, the blocking override list  
stored in RAM 48 is consulted. The blocking circuit 38, under microprocessor 44 control, allows  
the television program to pass to the TV display 42 if the television program is not contained in  
25 the blocking override list. The V-Chip Plus+ override lists are consulted by the microprocessor  
44 by comparing the CDTL information stored in RAM 48 with the tuner channel set by  
microprocessor 44 and an internal clock (not shown) in the microprocessor. Alternatively, the  
channel information can be striped from the XDS data by the VBI decoder 56, if available there.

In order for the compressed codes to be useful in compiling the V-Chip Plus+ override  
30 lists, the microprocessor 44 must be able to determine the channel on which the television  
program corresponding to the compressed code is transmitted on. Because the channel  
allocations vary depending on the particular television service (i.e., satellite transmission, cable  
service, over-the-air broadcasts) used by the viewer and the specific geographic area of service,  
a method of establishing a channel map is required. Such a method is described in co-pending  
35 U.S. application 08/694,864, which is hereby incorporated by reference as if set forth in full

1 herein. A channel map relates the television stations (i.e., KABC, KCET) to their respective  
channel frequency allocations for any particular television service.

5 Briefly, the particular type of television service is automatically detected in an  
embodiment of the present invention by monitoring the channel allocations of the television  
stations. This accomplished by sweeping the TV tuner 34 across its RF band with the  
microprocessor 44. A detector 57, coupled to the TV tuner 34, detects whether a television  
station has been allocated to each of the channels as the TV tuner 34 is swept across the RF band  
10 by monitoring the stability of the horizontal sync pulses. The microprocessor 44 can then  
determine the type of television service based on the channel allocation for a given geographic  
area. This scheme requires only that the viewer key in his or her zip code using the viewer input  
device 46. Alternatively, the automatic detection of the particular television service used by the  
viewer can be eliminated in favor of having the viewer key in directly the information pertaining  
to the model and brand of the VCR and cable box using the viewer input device 46.

15 Once the particular type of television service used by the viewer is ascertained, the  
appropriate channel map can be extracted by the VBI decoder 56 from the television signal based  
on the geographic location of the viewer. The microprocessor 44 again sweeps the TV tuner 34  
to locate a channel having channel map information transmitted in the VBI portion of the  
television signal. The microprocessor 44 then extracts the channel map marked with an  
20 identification code corresponding to the geographic location entered by the viewer and stores the  
extracted channel map in channel map memory 58.

The described embodiment of the V-Chip Plus+ system illustrated in FIG. 4 is directed to  
a fully integrated system utilizing a single microprocessor. However, those skilled in the art will  
readily appreciate that numerous applications may arise where it would be desirable to retrofit the  
V-Chip Plus+ system into a television receiver with an existing V-Chip system. As a result of  
25 Congressional endorsement of the V-Chip system, it is envisioned that many television  
manufacturers will develop a V-Chip IC ("IC") for user programing according to a standardized  
rating system, and include the V-Chip capability as a standard feature. In these systems, it would  
be advantageous to incorporate a V-Chip Plus+ upgrade into a single IC which could be easily  
integrated into an existing V-Chip system. An exemplary embodiment of such a V-Chip Plus+  
30 system is shown in FIG. 5.

Referring to FIG. 5, the V-Chip system includes the basic television processing and drive  
circuitry described with reference to FIG. 4. Specifically, a TV tuner 35 is positioned at the front  
end of the television receiver for passing a selected channel of a multichannel RF television signal  
35 to television drive circuitry 37. The output of the television drive circuitry 37 is connected to a

1 blocking circuit 39. The output of the blocking circuit 39 is connected to a TV display 43 through  
a video mixer 41 for selectively displaying the television program currently being broadcast on the  
selected channel.

5 A V-Chip 57, connected to the output of the television drive circuitry 37, extracts the  
XDS signal from the baseband television signal. The rating factors for the television program  
currently broadcast are stripped from the XDS data and are compared with the viewer  
programmed rating factors stored in internal memory of the V-Chip 57. In the event that the V-  
Chip 57 determines that the television program currently broadcast should be blocked based on  
10 the programmed rating factors, the blocking circuit 37 is actuated by the V-Chip 57 to block the  
currently broadcast television program from the TV display 43. Conversely, if the television  
program currently broadcast should be televised based on the programmed rating factors stored  
in memory, the blocking circuit 39 is deactivated by the V-Chip 57 and the television program is  
allowed to pass to the TV display 43.

15 The V-Chip system provides viewer's editing of the rating factors by using an Editor.  
Specifically, when the viewer wishes to review the particular ratings set in the V-Chip system, the  
V-Chip 57, under control of the viewer input device, retrieves the appropriate information from  
memory and couples it to the video processor 51, where the information is formatted for display.  
The video processor 51 is connected to the video mixer 41. The video mixer 41 outputs the  
20 information as an overlay on the television program currently being viewed, although it will be  
understood by those skilled in the art that the information from the video mixer 41 could be  
presented to the TV display 43 as a window in the television program or as a full screen display  
instead of the television program. Using the viewer input device in conjunction with the  
information presented to the TV display 43, the viewer programs the V-Chip system to exclude  
25 programs according to one or more rating factors.

Customization of the blocking function of the V-Chip 57 is achieved with an external V-  
Chip Plus+ IC 47. The implementation of the V-Chip Plus+ circuitry into an IC is an economical  
approach, however, it will be understood by those skilled in the art that the V-Chip Plus+ function  
could be implemented using discrete components. Preferably, the V-Chip Plus+ IC 47 is  
30 designed for easy retrofit into an existing television receiver with V-Chip capability already  
installed. The V-Chip Plus+ IC 47 is inserted in line between the V-Chip 57 and the blocking  
circuit 39. This requires disconnecting the V-Chip 57 from the blocking by removing wire 59.

In operation, when the V-Chip 57 determines that the television program currently  
broadcast should be blocked based on the programmed rating factors, the blocking signal is  
35 coupled to the V-Chip Plus+ IC 47. In response to the blocking signal, the microprocessor 45 in

1 the V-Chip Plus+ IC 47 consults an enable override list stored in RAM 49. The microprocessor  
45 will actuate the blocking circuit 39 to block the currently broadcast television program from  
the TV display 43 if the television program is not contained in the enable override list.  
5 Conversely, if the V-Chip 57 determines that the television program currently broadcast should  
be televised based on the programmed rating factors, the unblocking signal is coupled to the V-  
Chip Plus+ IC 47. In response to the unblocking signal, a blocking override list stored in RAM  
49 is consulted. The blocking circuit 39, under microprocessor 45 control, allows the television  
program to pass to the TV display 43 if the television program is not contained in the blocking  
10 override list.

10 The V-Chip Plus+ IC 47 is also connected to the video processor 51 for viewer edits to  
the V-Chip Plus+ override lists. In this configuration, the viewer can program the V-Chip system  
to exclude programs according to one or more rating factors, as well as compiling or modifying  
the V-Chip Plus+ override lists. When the viewer wishes to review or edit the V-Chip Plus+  
15 override lists, the microprocessor 45 retrieves the appropriate information from RAM 49 and  
couples it to the video processor 51, where the information is formatted for display. The video  
processor 51 outputs the information, via the video mixer 41, preferably as an overlay on the  
television program currently being viewed. Edits to the V-Chip Plus+ override lists are  
accomplished using, by way of example, compressed codes. A G-code decoder 55 is employed  
20 to process the compressed codes in the same manner as described above with reference to the  
embodiment illustrated in FIG. 4.

The viewer input device 46 preferably takes the form of a hand-held remote IR transmitter  
which communicates with an IR receiver connected to the microprocessor 44. As shown in FIG.  
6, the IR transmitter has a housing 60 on which a number of control keys are mounted. A  
25 CHANNEL SURF key 62, a V-CHIP PLUS+ key 64, a REVIEW key 69, a BABYSITTER key  
71, a MENU key 63, an ENTER key 65, and a CHANGE key 67 are all provided on the housing  
60. Located below the REVIEW key 69 and the BABYSITTER key 71 are up, down, left and  
right arrow keys 66, 68, 70 and 72, respectively. A numerical keypad 73 is positioned below the  
ENTER key 65 and CHANGE key 67. The blocking and unblocking functions are set and  
30 selected in two different modes, a TV mode and a GUIDE mode.

#### TV Mode

35 Preferably, the user interface is fully menu driven. On-screen options are presented to the  
TV display for programming the V-Chip Plus+ system, and editing the V-Chip Plus+ override  
lists. In a TV mode, these on-screen options can be accessed from the normal television picture

1 viewing mode by selecting either the CHANNEL SURF key 62, the V-CHIP PLUS+ key 64, or the MENU key 63 on the viewer input device.

5 Upon activation of the CHANNEL SURF key, a channel selection list 74 is retrieved by the microprocessor from the channel map memory and presented to the TV display by the video processor as an overlay on the television picture via the video mixer as shown in FIG. 7. This display format is called the Channel Surf Menu. The channel selection list 74 consists of a column for television station names or call letters 76, and a corresponding column identifying the allocated channel for each television station 78, with the channel currently tuned by the TV tuner highlighted by a first cursor 80. In this mode, the viewer can tune any channel on the channel selection list 74 by moving the first cursor 80 vertically with the up and down arrow keys on the viewer input device. As the first cursor 80 moves from one channel to another, the microprocessor causes the TV tuner to tune the highlighted channel for display on the TV display. The viewer may exit the Channel Surf Menu at any time and return to the normal television picture viewing mode by depressing the CHANNEL SURF key on the viewer input device.

15 Preferably, the microprocessor has individual channel block capability. That is, selected channels can be blocked in their entirety regardless of the rating factors established by the viewer in the V-Chip Plus+ system or the override lists created by the viewer in the V-Chip Plus+ system. Channel block indication is shown in the channel selection list 74 of the Channel Surf Menu by replacing the channel allocation for the blocked television station with an "X". In FIG. 7, both FOX and KMEX have been blocked.

20 Three sub-menus can be accessed from the Channel Surf Menu by depressing the right arrow key on the viewer input device from any highlighted channel. In response, three on-screen sub-menu prompts are presented to the TV display as shown in FIG. 8. These on-screen sub-menu prompts are displayed horizontally next to the highlighted channel, and may be accessed by moving a second cursor 82 with the right and left arrow keys on the viewer input device. A description of the on-screen sub-menu prompt selected by the viewer with the second cursor 82 is displayed immediately below. The viewer may remove the on-screen sub-menu prompts from the Channel Surf Menu at any time by depressing the CHANNEL SURF key on the viewer input device.

30 In FIG. 8, KABC is highlighted by the first cursor 80, and an icon which allows the viewer to toggle KABC between a channel block mode and a channel unblock mode is highlighted by the second cursor 82. A message, "Block this channel," describing the operation of the icon is displayed below the on-screen sub-menu prompts. With this set up, KABC can be blocked with a single touch of the ENTER key on the viewer input device. The channel block command from

1 the viewer input device is stored in RAM by the microprocessor for controlling the blocking  
circuit when the viewer subsequently attempts to tune KABC on the television receiver. The  
microprocessor then causes the video processor to overlay, via the video mixer, the Channel Surf  
Menu shown in FIG. 9 on the television picture. The replacement of the channel allocation "7"  
5 for KABC with an "X" confirms that the command for blocking this channel has successfully been  
loaded into RAM. The on-screen sub-menu icon prompt has also been changed to indicate that  
KABC may be unblocked, as indicated by the message below the on-screen sub-menu prompts,  
again with a single stroke of the ENTER key on the viewer input device.

10 The V-Chip Plus+ override lists can be accessed by the viewer from the Channel Surf  
Menu by highlighting the "Review" on-screen sub-menu prompt with the second cursor 82 as  
shown in FIG. 10. The message below the on-screen sub-menu prompts reads "VCR/V-Chip  
Plus+ Review List." In a preferred embodiment, the enable override list and the blocking override  
list are combined into a single list on the VCR/V-Chip Plus+ Review List. Preferably, the  
15 VCR/V-Chip Plus+ Review List also allows viewer editing of the television programs selected for  
VCR Plus+ applications, a system developed by Gemstar Development Corporation which allows  
a timer preprogramming feature on a VCR to be programmed using compressed codes.

By depressing the ENTER key on the viewer input device while the "Review" on-screen  
sub-menu prompt is highlighted by the second cursor 82, the microprocessor retrieves the  
designated television programs for the VCR Plus+ system and the V-Chip Plus+ override feature  
20 from memory and causes the video processor to overlay a VCR/V-Chip Plus+ Review List onto  
the normal television picture on the TV display, via the video mixer, as shown in FIG. 11. It will  
be appreciated by those skilled in the art that VCR/V-Chip Plus+ Review List can be divided into  
two separate screens, one for the VCR Plus+ system and the other for the V-Chip Plus+ override  
list, and accessed by providing separate keys on the viewer input device.

25 The VCR/V-Chip Plus+ Review List shown in FIG. 11 comprises a list of television  
programs designated under either the VCR Plus+ system or the V-Chip Plus+ override feature.  
Each television program is displayed on the VCR/V-Chip Plus+ Review List by its respective  
CDTL information. It will be appreciated by those skilled in the art that the titles of the television  
programs could be alternately, or additionally displayed with the CDTL information by accessing  
30 an EPG data base in memory with the microprocessor as described in co-pending U.S. application  
08/744,399, the contents of which is hereby incorporated by reference as if set forth in full herein.

To the left of each television program defined by the CDTL information is an icon  
35 indicating the function to be performed by the microprocessor. By way of example, the icon 84

1 to the left of the television program beginning on Saturday, January 10, at 11:15 P.M. on channel  
7 indicates that this television program is to be recorded by the VCR under control of the VCR  
Plus+ program in the microprocessor. The icon 86 to the left of the television program beginning  
5 Wednesday, January 21, at 2:00 P.M. on channel 35 indicates that the television receiver will be  
automatically turned on and tuned to this television program under the VCR Plus+ program in the  
microprocessor. The icon 88 to the left of the television program televised weekly on Saturdays  
at 11:00 A.M. on channel 28 indicates that the television program is to be blocked by the blocking  
circuit even though the rating factors embedded in the VBI portion of the television signal meet  
10 the rating criteria established by the viewer in the V-Chip Plus+ system. The icon 90 to the left  
on the television program beginning Sunday, January 18, at 10:00 P.M. on channel 2 indicates that  
the television program will be shown despite having rating factors embedded in the VBI of the  
television signal that would otherwise cause the television program to be blocked by the V-Chip  
Plus+ system.

15 The lower portion of the VCR/V-Chip Plus+ Review List 92 contains instructions to assist  
the viewer in editing the television programs with the viewer input device. Arrow indicators 94,  
with accompanying text "MOVE," inform the viewer that the individual television programs can  
be selected by vertically moving the cursor 96 with the up and down arrow keys on the viewer  
input device. Once the desired television program is selected by the viewer, the viewer can then  
20 either delete the television program from the VCR/V-Chip Plus+ Review List, or alter the length  
of the designated function indicated by the icon to the left of the television program. As indicated  
in the lower portion of the VCR/V-Chip Plus+ Review List 92, the selected television program  
highlighted by the cursor 96 can be deleted by depressing the ENTER key on the viewer input  
device. Alternatively, the length of the designated function programmed in the VCR/V-Chip  
25 Plus+ system can be altered by first depressing the CHANGE key on the viewer input device, and  
then incrementing or decrementing the length with the right and left arrow keys, respectively, on  
the viewer input device. The viewer may exit the VCR/V-Chip Plus+ Review List and return to  
the Channel Surf Menu of FIG. 34 at any time by depressing the V-CHIP PLUS+ key on the  
viewer input device.

30 From the Channel Surf Menu of FIG. 10, the viewer can access the V-Chip Plus+ Setup  
Screen by highlighting the "V-Chip Plus+" on-screen sub-menu prompt with the second cursor  
82 as shown in FIG. 12. A message "Go to V-Chip Plus+ Setup Screen" is displayed immediately  
below the on-screen prompts. By depressing the ENTER key on the viewer input device while  
the "V-Chip Plus+" on-screen sub-menu prompt is highlighted by the second cursor 82, the  
35 microprocessor retrieves the V-Chip Plus+ rating factors from memory and causes the video



1 processor to overlay the V-Chip Plus+ Setup Screen onto the normal television picture on the TV display, via the video mixer, as shown in FIG. 13.

5 The V-Chip Plus+ Setup Screen indicates the V-Chip Plus+ system rating set by the viewer under the heading "Highest Acceptable Rating." In FIG. 13, the current V-Chip Plus+ system rating programmed into RAM is "TV-PG Parental Guidance." The individual default rating factors (i.e., violent content, sexual content, language, dialogue) for "TV-PG Parental Guidance" are listed below. In a preferred embodiment, independent control of the default rating factors by the viewer is provided. For example, the default rating factors for the V-Chip Plus+ system rating "TV-PG Parental Guidance" are moderate violence, intense sexual content, coarse language, and suggestive dialogue. However, the viewer may desire to limit viewing access to "TV-PG Parental Guidance" television programs with no violent content. In this case, the viewer would move the cursor 94 vertically using the up and down arrow keys on the viewer input device from the V-Chip Plus+ system rating to the violent content indicator immediately to the left of the descriptive text "Moderate Violence." The violent content of television programs accessible to the viewer can now be altered by first depressing the CHANGE key on the viewer input device to enable a change in the rating factor, and then using the left and right arrow keys to adjust the violent content of television programming to the desired level. As shown in FIG. 14, the viewer has successfully limited viewing of television programs to "TV-PG Parental Guidance" without any violent content.

20 Alternatively, the entire V-Chip Plus+ system rating programmed in RAM can be altered by the viewer. This function is performed by positioning the cursor 94 on the V-Chip Plus+ system rating indicator "TV-PG Parental Guidance" by depressing the up and down arrow keys on the viewer input device. Next, the CHANGE key on the viewer input device is depressed to enable a change in the V-Chip Plus+ system rating. Then the desired V-Chip Plus+ rating can be adjusted using the left and right arrow keys on the viewer input device. These operational steps are illustrated at the bottom of the V-Chip Plus+ Setup Screen 95 to facilitate viewer editing. As shown in FIG. 15, the V-Chip Plus+ system rating programmed in RAM, via the microprocessor, has been changed to "TV-MA Mature Audience Only." The default rating factors stored in RAM allow viewing of television programs containing graphic violence, explicit sexual content, crude language and indecent dialogue. These rating factors are compared against corresponding factors transmitted in the VBI portion of the television program currently being broadcast.

30 In a preferred embodiment, other V-Chip Plus+ system ratings include "TV-P14 Parents Cautioned !!!" for television programming with moderate violence, intense sexual content, crude language and very suggestive dialogue; "TV-G General Audience" for television programming

1 with no violence, no sexual content, no strong language and no sexual dialogue; "TV-Y7 Older  
Children" for television programming with no violence, no sexual content, no strong language and  
no sexual dialogue; and "TV-Y All Children" for television programming with no violence, no  
sexual content, no strong language and no sexual dialogue. The individual rating factors for each of  
5 these V-Chip Plus+ system ratings can be independently controlled in the manner described above.  
It will be appreciated by those skilled in the art that other V-Chip Plus+ system ratings could be  
used and the individual rating factors could be different from the described embodiment depending  
upon the needs of the manufacturer or consumer.

10 The viewer may exit the V-Chip Plus+ Setup Screen and return to the Channel Surf Menu  
of FIG. 12 at any time by depressing the CHANNEL SURF key on the viewer input device. From  
the Channel Surf Menu, normal viewing of the television picture can be selected by the viewer by  
depressing the CHANNEL SURF key on the viewer input device a second time.

15 From the normal picture viewing mode, the VCR/V-Chip Plus+ Main Screen can be  
accessed by selecting the V-CHIP PLUS+ key on the viewer input device. This causes the video  
processor, under microprocessor control, to overlay the VCR/V-Chip Plus+ Main Screen, via the  
video mixer, onto the television picture on the TV display as shown in FIG. 16. The viewer can  
program the VCR Plus+ system and the V-Chip Plus+ system from the VCR/V-Chip Plus+ Main  
Screen.

20 The format of the VCR/V-Chip Plus+ Main Screen includes an upper portion for viewer  
entry of compressed codes, such as PlusCode™ numbers used by Gemstar Development  
Corporation's VCRPlus+® systems that presently appear in published television schedules.  
Specifically, the viewer highlights the top portion of the VCR/V-Chip Plus+ Main Screen  
immediately to the right of the text "PLUSCODE" with a cursor 96 and enters the compressed  
25 code that appears with the program listed in the published television schedule by using the  
numerical keypad on the viewer input device. Once the compressed code is entered by the viewer,  
the cursor 96 is then moved to the desired feature listed below the compressed code entry by  
using the arrow keys on the viewer input device. Preferably, the left half of the VCR/V-Chip  
Plus+ Main Screen is dedicated to the VCR Plus+ functions, and the right half of the VCR/V-Chip  
Plus+ Main Screen is dedicated to the V-Chip Plus+ functions. The VCR Plus+ functions include  
30 a RECORD option for programming the VCR to automatically record a television program, and  
a VIEW option for automatically turning on the television receiver and tuning the selected  
television program when aired. The V-Chip Plus+ functions include a BLOCK option for creating  
the blocking override list, and an UNBLOCK option for creating the enable override list.

1        Once the viewer selects the desired option, the ENTER key on the viewer input device  
is then depressed causing the CDTL information of the television program corresponding to the  
compressed code entered by the viewer to be loaded in RAM by the microprocessor and  
5        designated for the viewer selected option. For example, referring to FIG. 17, by depressing the  
ENTER key on the viewer input device with the RECORD option highlighted by the cursor 96,  
the VCR will automatically record the television program corresponding to the compressed code  
"17893." A Confirmation Screen, as shown in FIG. 18, will be presented to the TV display by  
the video processor as an overlay on the normal television picture, via the video mixer, when the  
10        ENTER key on the viewer input device is depressed. The viewer will then have the option of  
recording the selected television program once, daily or weekly by highlighting the appropriate  
selection with a cursor 98 and depressing the ENTER key on the viewer input device. Once the  
frequency of recordation is selected from the Confirmation Screen, the user can return to the  
VCR/V-Chip Plus+ Main Screen by selecting V-CHIP PLUS+ key on the viewer input device.

15        The CDTL information entered from the VCR/V-Chip Plus+ Main Screen is formatted  
in RAM for display on the VCR/V-Chip Plus+ Review List when accessed as a sub-menu from  
the Channel Surf Menu (FIG. 10). In addition, the VCR/V-Chip Plus+ Review List can be  
accessed directly from the VCR/V-Chip Plus+ Main Screen by highlighting the "Review List"  
option with the cursor 96 and depressing the ENTER key on the viewer input device. The  
20        VCR/V-Chip Plus+ Review List, which is presented to the TV display by the video processor as  
an overlay on the normal television picture, via the video mixer, is edited in the same manner as  
described with reference to FIG. 11. When the VCR/V-Chip Plus+ Review List is entered from  
the VCR/V-Chip Plus+ Main Screen, the viewer must depress the V-CHIP PLUS+ key on the  
viewer input device to exit and return to the VCR/V-Chip Plus+ Main Screen. The V-CHIP  
25        PLUS+ key on the viewer input device is depressed a second time to exit the VCR/V-Chip Plus+  
Main Screen and return to the normal television picture viewing mode.

30        From the normal television picture viewing mode, the TV Menu (not shown) may be  
accessed by the viewer by depressing the MENU key on the viewer input device. The TV menu  
allows the viewer to perform certain functions such as activating channels, activating closed  
caption television and adjusting picture clarity (i.e., contrast, brightness, color). In addition, the  
VCR/V-Chip Setup Screen, as shown in FIG. 19, may be accessed from the TV Menu.

35        The VCR/V-Chip Plus+ Setup Screen permits the viewer to define certain parameters  
which allow automated channel mapping according to the television signal source and the  
geographic location of the viewer. In the preferred embodiments without television signal source  
detection (i.e., monitoring the channel allocations of the television stations) the video source, the

1 VCR brand and the cable box brand used by the viewer are entered directly into the VCR/V-Chip  
Plus+ Setup Screen with the viewer input device. From the VCR/V-Chip Plus+ Setup Screen  
shown in FIG. 18, the viewer, residing in the United States at zip code 91106, utilizes a Pioneer  
5 cable box with a Phillips VCR. From the zip code information, the appropriate channel map can  
be downloaded by the microprocessor from the VBI of the television signal to RAM as described  
in co-pending U.S. application 08/694,864, which is hereby incorporated by reference as if set  
forth in full herein. From the other information the proper IR codes for operating the VCR and  
cable box are selected.

10 The information on the VCR/V-Chip Plus+ Setup Screen can be edited by the viewer by  
moving a cursor 100 vertically between the on-screen prompts with the up and down arrow keys  
on the viewer input device. For example, in the event that the viewer switches from cable box  
service to direct cable, a new channel map may be required for VCR/V-Chip Plus + operation.  
The new channel map can be downloaded into RAM with minimal viewer effort by accessing the  
15 VCR/V-Chip Plus+ Setup Screen, highlighting the text "Cable Box" immediately to the right of  
the "Video Source" prompt with the cursor 100, depressing the CHANGE key on the viewer  
input device to enable a change in the video source, and then depressing the left and right arrow  
keys on the viewer input device to select the appropriate video source. In this case, the viewer  
will operate the arrow keys on the viewer input device until the text "Cable Direct" appears on  
20 the VCR/V-Chip Plus+ Setup Screen next to the "Video Source" prompt. With this entry, the  
"Cable Box" prompt is removed from the VCR/V-Chip Plus+ Setup Screen as shown in FIG. 20.

25 The VCR/V-Chip Plus+ Setup Screen also includes a "Next" on-screen prompt 102. If  
a cable box service is entered into the VCR/V-Chip Plus+ Setup Screen by the viewer, or  
automatically detected by the microprocessor, the proper cable box codes must be set to operate  
the cable box. This is accomplished by positioning the cursor 100 on the "Next" on-screen  
prompt 102 with the up and down arrow keys on the viewer input device, and then depressing  
30 ENTER. This sequence causes the microprocessor to retrieve IR codes compatible with the  
cable box from memory and store them in RAM. This step is necessary to give the  
microprocessor control over the tuner in the cable box for VCR/V-Chip Plus+ system operation.

35 Those skilled in the art will readily recognize that the user interface described above is  
merely an exemplary embodiment of the present invention and that numerous other user interfaces  
may be utilized within the scope of the present invention. By way of example, an alternative  
embodiment of the user interface will be described with reference to a user interface screen map  
shown in FIG. 21. In this alternative embodiment, the viewer may enter the either a "V-Chip

1 Plus+ Features" screen 106 or a "Channel Surf" screen 108 from the normal television viewing mode 104.

5 The viewer may exit the VCR/V-Chip Setup Screen and enter the TV Menu at any time by depressing the MENU key on the viewer input device. The normal picture viewing mode can then be accessed from the TV Menu by depressing the MENU key on the viewer input device a second time.

10 The V-Chip Plus+ features screen 108 can be pulled up by selecting the V-CHIP PLUS+ key on the viewer input device. Upon activation of the V-CHIP PLUS+ key, the V-Chip Plus+ features screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. Another exemplary V-Chip Plus+ features screen in accordance with the described embodiment is shown in FIG. 22. Referring to FIG. 22, four sub-menus can be accessed from the V-Chip Plus+. The four sub-menu selections include a BABYSITTER feature 110, a V-CHIP PLUS+ blocking feature 112, a V-CHIP set feature 114, and a RECORD/WATCH feature 116. From the V-Chip Plus+ features screen (see FIG. 22) any sub-menu can be selected by the viewer by positioning a cursor 118 on the desired sub-menu selection with the up and down arrow keys on the viewer input device and then depressing the ENTER key.

20 In the described embodiment illustrated in FIG. 22, the V-CHIP set feature 114' is highlighted by the cursor 118. As described above with reference to other embodiments of the present invention, the V-CHIP set feature allows the viewer to program his or her television system to exclude programs according to a selected rating criteria. From this sub-menu selection, the viewer can either review or edit the rating criteria by depressing the ENTER key on the viewer input device. As a result, the V-Chip set screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary V-Chip set screen is shown in FIG. 23. Initially, from the V-Chip set screen, the viewer has the option of deactivating the V-Chip system. This is accomplished by positioning a cursor 122 on the OFF prompt 120 with the arrow keys on the viewer input device and then depressing the ENTER key. In response, a message indicating that the V-Chip feature is disabled will appear on the message screen 124. As a result, the blocking circuit will be controlled by the microprocessor independently of the rating factors contained in the VBI.

30 To activate the V-Chip system, the viewer merely positions the cursor 122 over the ON prompt 126 with the arrow keys on the viewer input device and depresses the ENTER key. Once activated, the rating factors extracted from the VBI of the television signal will be compared with

1 the current rating factors stored in RAM and used to determine whether the blocking circuit, under microprocessor control, will allow television programs to pass to the TV display.

5 Once the V-Chip system is activated, the current rating set by the viewer will be displayed on the message screen 124. In the described embodiment, the V-Chip system can be programmed using movie ratings, such as those promulgated by the Motion Picture Association of America, as well as TV ratings. Preferably, the V-Chip system should be programmed with both TV and movie ratings to accommodate television programming utilizing different rating systems. Viewing and editing of either the TV or movie ratings is accomplished by selecting the appropriate prompt 128, 130 on the V-Chip set screen with the viewer input device.

10 Referring to FIG. 24, the current V-Chip rating for TV programs in RAM is "TV-PG Parental Guidance." In a preferred embodiment, the "TV-PG Parental Guidance" allows viewing of television programs with moderate violence, some sexual situations, some coarse language and suggestive dialogue. Each of these rating factors can be individually activated or deactivated by positioning the cursor 122 on the appropriate prompt, by way of example, "Violence" 132, and depressing the right or left arrow key on the user input device. As a result, the violent content of television programming will not be used to determine whether the current televised show should be blocked.

15 Alternatively, the overall V-Chip system rating programmed in RAM for either TV or movies can be altered by the viewer. This function is performed by positioning the cursor 122 on the message screen 124 with the up and down arrow keys on the viewer input device. Next, the right and left arrow key are used to peruse the different V-Chip system ratings until the desired rating appears on the message screen 124 at which time the viewer can select that rating by depressing the ENTER key on the viewer input device. The particular V-Chip system ratings for movies and TV programs may vary depending upon the needs of the manufacturer or consumer. Exemplary V-Chip system ratings for TV programs are described above with reference to other embodiments of the present invention.

20 The V-Chip Plus+ block list can be accessed from the V-Chip set screen by positioning the cursor 122 on the V-CHIP PLUS+/BLOCK prompt 134 with the up and down arrow keys on the viewer input device and depressing the ENTER key. The ability to directly access the V-Chip Plus+ block list from the V-Chip set screen is shown in FIG. 21 by path 136. Alternatively, the viewer can exit the system and return to normal television viewing 104 by depressing the V-CHIP PLUS+ key on the viewer input device. From the normal television screen 104, the viewer can depress the V-CHIP PLUS+ key on the viewer input device a second time to pull up the V-

1 Chip Plus+ features screen 106, and select the V-CHIP PLUS+ blocking feature 112 in the manner described above with reference to FIG. 22.

5 Once the V-CHIP PLUS+ blocking feature is selected by the viewer, the V-Chip Plus+ screen is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary V-Chip Plus+ screen is shown in FIG. 25. From the V-Chip Plus+ screen the viewer can both review and edit the V-Chip Plus+ blocking list. To edit the V-Chip Plus+ blocking list, the viewer positions a cursor 136 on the PlusCode entry line 138, enters the compressed code that appears with the program listed in the published television schedule by using the numeric keypad on the viewer input device, and depresses the ENTER key. As described above with reference to other embodiments of the present invention, the use of PlusCodes to create the V-Chip Plus+ blocking list is a convenient method, although it will be understood by those skilled in the art that other methods could be used such as program title entries or selection from an electronic program guide.

15 Once the ENTER key is depressed, a sub-menu is retrieved by the microprocessor from RAM and presented to the TV display. The sub-menu, shown in FIG. 26, allows the user to block the selected television program once, or alternatively, on a daily or weekly basis. The blocking frequency is set by positioning a cursor 140 over the desired prompt. In FIG. 26, the ONCE prompt 142 is highlighted for illustrative purposes, and once entered into the system with the viewer input device, will produce the message shown in the message display 144. The V-Chip Plus+ blocking screen of FIG. 25 is then re-entered by depressing the V-CHIP PLUS+ key on the viewer input device.

25 To review the television programs that have been selectively blocked, a V-Chip Plus+ blocking list is consulted by depressing the REVIEW key on the viewer input device. As a result, the V-Chip Plus+ selections list is retrieved by the microprocessor from RAM and presented to the TV display by the video processor as an overlay on the television picture via the video mixer. An exemplary V-Chip Plus+ selections list is shown in FIG. 27. Next, the viewer positions a cursor 144 on the BLOCK prompt 146 and depresses the ENTER key on the viewer input device. A list of television programs selected by the viewer for blocking, that would otherwise be passed to the TV display by the V-Chip system, is presented to the screen. Each television program is displayed on the V-Chip Plus+ blocking list by its respective CDTL information. It will be appreciated by those skilled in the art that the titles of the television programs could be alternately displayed, or additionally displayed with the CDTL information, by accessing an EPG data base in memory with the microprocessor. The V-Chip Plus+ selection screen also provides

1 limited editing features. For example, any television program may be deleted from the V-Chip  
Plus+ blocking list by positioning the cursor 144 over the CDTL information corresponding to  
the desired television program and depressing the ENTER key on the viewer input device to  
5 delete the highlighted television program. In addition, the length of the blocking function  
programmed in the microprocessor for the highlighted television program can be altered by first  
depressing the CHANGE key on the viewer input device, and then incrementing or decrementing  
the length with the right and left arrow keys, respectively, on the viewer input device.

To exit the V-Chip Plus+ selection screen, the viewer depresses the V-CHIP PLUS+ key  
10 on the viewer input device. As shown in FIG. 21, the normal viewing television screen 104 is  
entered from the V-Chip Plus+ selection screen 148. From the normal television screen 104, the  
viewer can then depress the V-CHIP PLUS+ key on the viewer input device a second time to pull  
up the V-Chip Plus+ features screen 106.

The V-Chip Plus+ features screen 106 includes a Record/Watch 116 option. The  
15 "Record" option provides a means for programming the VCR to automatically record a television  
program, and the "Watch" option allows the television receiver to be turned on automatically and  
tuned to a selected television program when aired.

The Record/Watch Option 116 can be accessed from the V-Chip Plus+ features screen  
106 by positioning the cursor 118 on the RECORD/WATCH prompt 116' with the arrow keys  
20 on the viewer input device and depressing the ENTER key (see FIG. 22). Once the  
RECORD/WATCH feature is selected by the viewer, the Record/Watch screen is retrieved by the  
microprocessor from RAM and presented to the TV display by the video processor as an overlay  
on the television picture via the video mixer. An exemplary Record/Watch screen is shown in  
FIG. 28. From the Record/Watch screen, the viewer can review and edit the television programs  
25 he or she wishes to record or view. To edit the Record list, the viewer first positions a cursor 148  
over the RECORD prompt 150 and depresses the ENTER key on the viewer input device. Next,  
the cursor 148 is positioned on the PlusCode entry line 152 and the compressed code from the  
published television schedule is entered with the numeric keypad on the viewer input device much  
in the same way the V-Chip Plus+ blocking list is created. Once the PlusCode is keyed in, the  
30 ENTER key is depressed on the viewer input device. The Watch list can also be edited in the  
same manner except that the WATCH prompt 154 is highlighted with the cursor 148 prior to  
entering the PlusCode.

Once a new television program is entered for either recording or watching, a sub-menu  
similar to the one used to edit the V-Chip Plus+ blocking list is retrieved by the microprocessor  
35 from RAM and presented to the TV display. The sub-menu, shown in FIG. 29, allows the user



1 to record or watch, whatever the case may be, the selected television program once, or  
alternatively, on a daily or weekly basis. The blocking frequency of the selected television  
program is set by positioning a cursor 156 over the desired prompt. In FIG. 29, the ONCE  
5 prompt 158 is highlighted for illustrative purposes, and once entered into the system with the  
viewer input device, will produce the message for recording the selected television program  
shown in the message display 158. FIG. 30 is an example of a sub-menu screen for editing the  
watch list. Upon completion of editing the record or watch list, the Record/Watch screen of FIG.  
28 is then re-entered by depressing the V-CHIP PLUS+ key on the viewer input device.

10 To review the television programs selected for recordation or watching, the V-Chip Plus+  
selection screen (see FIG. 27) is retrieved from the microprocessor and presented to the TV  
display by depressing the REVIEW key on the viewer input device. To review the record list, the  
viewer positions the cursor 144 on the RECORD prompt 160 and depresses the ENTER key on  
the viewer input device. A list of television programs selected by the viewer for recordation is  
15 presented to the screen in a CDTL format as shown in FIG. 31. Conversely, the watch list can  
be viewed by positioning the cursor 144 on the WATCH prompt 162 (see FIG. 27) and depresses  
the ENTER key on the viewer input device. A list of television programs selected by the viewer  
for watching is presented to the screen in a CDTL format as shown in FIG. 32. Preferably, the  
same limited editing features described with reference to the V-Chip Plus+ blocking list is also  
20 available for the record and watch lists.

As described above, to exit the V-Chip Plus+ selection screen, the viewer depresses the  
V-CHIP PLUS+ key on the viewer input device. As shown in FIG. 21, the normal viewing  
television screen 104 is entered from the V-Chip Plus+ selection screen 148. From the normal  
television screen 104, the viewer can then depress the V-CHIP PLUS+ key on the viewer input  
25 device a second time to pull up the V-Chip Plus+ features screen 106.

The V-Chip Plus+ features screen also provides a BABYSITTER function to control the  
unsupervised television viewing of children. The BABYSITTER operates independently of the  
V-Chip Plus+ system and blocks all television programs from the TV display except for those  
shows placed on a BABYSITTER list.

30 To enter the BABYSITTER function from the V-Chip Plus+ features screen (see FIG.  
22), the viewer positions the cursor 118 on the BABYSITTER prompt 110' with the arrow keys  
on the viewer input device and then depresses the ENTER key. As a result, the Babysitter screen  
is retrieved by the microprocessor from RAM and presented to the TV display by the video  
processor as an overlay on the television picture via the video mixer. An exemplary Babysitter  
35 screen is shown in FIG. 33.

1 To activate the BABYSITTING feature, the viewer positions a cursor 160 on the ON  
prompt 162 with the arrow keys on the viewer input device and then depresses the ENTER key.  
In response, the television picture background to the overlaid Babysitter screen will be blacked  
out, unless a television program contained in the Babysitter list is currently being televised.  
5 Conversely, to deactivate the Babysitting feature, the cursor 160 is positioned over the OFF  
prompt 164 and the ENTER key is then depressed, causing the television picture to reappear in  
the background portion of the babysitting screen overlay.

From the Babysitter screen the viewer can edit and review the Babysitting list. To edit the  
Babysitting list, the viewer positions the cursor 160 on the PlusCode entry line 166 and enters the  
10 compressed code that appears with the program listed in the published television schedule by  
using the numeric keypad on the viewer input device. Then the viewer selects the frequency in  
which the television show is allowed to be watched (i.e., once, daily, or weekly) by positioning  
the cursor 160 over the appropriate prompt, and depresses the ENTER key. As described above  
with reference to other embodiments of the present invention, the use of PlusCodes to create the  
15 V-Chip Plus+ blocking list is a convenient method, although it will be understood by those skilled  
in the art that other methods could be used such as program title entries or selection from an  
electronic program guide.

To review the television programs that have been selected for viewing by the babysitter,  
a Babysitter Program Review list is consulted by depressing the REVIEW key on the viewer input  
20 device. As a result, the Babysitter Program Review list is retrieved by the microprocessor from  
RAM and presented to the TV display by the video processor as an overlay on the television  
picture via the video mixer. An exemplary Babysitter Program Review list is shown in FIG. 34.  
The Babysitter Program Review list comprises a list of television programs that have been  
selected for viewing by the Babysitter. Any television program not contained on the Babysitter  
25 Program Review list will be blocked by the microprocessor from the TV display when the  
Babysitting feature is activated regardless of the V-Chip Plus+ rating factors programmed into  
RAM. Similar to the other television lists described above, the Babysitting Program Review list  
displays the selected television programs by their respective CDTL information. It will be  
appreciated by those skilled in the art that the titles of the television programs could be alternately  
30 displayed, or additionally displayed with the CDTL information, by accessing an EPG data base  
in memory with the microprocessor.

The Babysitting Program Review screen also provides limited editing features. For  
example, any television program may be deleted from the Babysitter Program Review list by  
35 positioning a cursor 168 over the desired CDTL information corresponding to the desired

1 television program and depressing the ENTER key on the viewer input device to delete the  
highlighted television program. Alternatively, the length of the viewing time for the highlighted  
television program can be altered by first depressing the CHANGE key on the viewer input  
5 device, and then incrementing or decrementing the length with the right and left arrow keys,  
respectively, on the viewer input device. Preferably, the Babysitting feature can be activated or  
deactivated from this screen by positioning the cursor 168 over the appropriate prompt and  
depressing the ENTER key on the viewer input device. The Babysitting feature can be also  
activated or deactivated from VChip Plus+ menu by selecting an entry for the Babysitting feature  
10 (not shown).

To exit the Babysitter Program Review screen, the viewer either depressed the  
BABYSITTER key on the viewer input device to return to the Babysitter screen of FIG. 33, or  
depresses the V-CHIP PLUS+ key on the viewer input device to return to the normal viewing  
television screen.

15 In addition to accessing the V-Chip Plus+ features screen from the normal television  
viewing mode 104, a channel surf option provides direct access to certain features. By way of  
example, the viewer can access directly from the channel surf screen 108 the V-Chip Plus+  
Program Review list 148 and the Babysitter Program Review list 170. The channel surf screen  
is retrieved by the microprocessor from RAM and presented to the TV display by the video  
20 processor as an overlay on the television picture via the video mixer by depressing the CHANNEL  
SURF key on the viewer input device. An exemplary channel surf screen is shown in FIG. 35.  
In a preferred embodiment, the channel surf screen is also presented to the TV display for a short  
period of time every time a new channel is tuned.

Referring to FIG. 35, the tuned channel is presented to the TV display for viewer  
25 information. In a preferred embodiment, three on-screen sub-menu prompts are displayed  
horizontally below the channel indicator, and may be accessed by moving a cursor 174 with the  
right and left arrow keys on the viewer input device. A description of the on-screen sub-menu  
prompt selected by the viewer with the cursor 174 is displayed immediately below. In the  
embodiment illustrated in FIG. 35, the viewer has selected the Babysitter feature, and the message  
30 "Go to Babysitter Screen" appears below the sub-menus. This approach allows the viewer to  
directly access the Babysitter function without having to first go through the V-Chip Plus+  
features screen. The viewer merely depressed the ENTER key on the viewer input device and the  
Babysitter screen shown in FIG. 33 is retrieved by the microprocessor from RAM and presented  
to the TV display as an overlay. From this screen, the viewer may either pull up the Babysitter

1 Program Review list (see FIG. 34) or return to the normal television viewing mode in the same manner described above with reference to the V-Chip Plus+ features screen.

5 The channel surf screen also provides the capability to block or unblock the channel tuned by the microprocessor. This is achieved by positioning the cursor 174 over the BLOCK CH prompt 176 as shown in FIG. 36. In response, a message "To Block this Channel" appears in the message display 178. The ENTER key on the viewer input device is then depressed to block the entire channel. This approach allows, by way of example, KCOP to be blocked with a single touch of the viewer input device. The channel block command from the viewer input device is stored in RAM by the microprocessor for controlling the blocking circuit. A new message, "To Unblock this Channel," is retrieved by the microprocessor and presented to the TV display in the message screen 178 as shown in FIG. 37. The channel can now be unblocked by simply depressing the ENTER key on the viewer input device a second time.

10 The V-Chip Plus+ Program list can also be accessed directly by the viewer from the channel surf screen by positioning the cursor 174 on the "Review" on-screen sub-menu prompt causing a message, "Review V-Chip Plus+ Selections," on the message display 178 as shown in FIG. 38. The ENTER key on the viewer input device is then depressed to call up the V-Chip Plus+ Program Review list on the TV display. Once the V-Chip Plus+ Program Review list is retrieved, the list can be edited and reviewed in the same manner described above. To exit the V-Chip Plus+ Program Review list and return to the normal television viewing mode, the viewer depresses the V-CHIP PLUS+ key on the viewer input device.

### GUIDE MODE

25 Referring to FIG. 43, the several VChip Plus+ screens are accessed from the Menu bar; the user highlights the "VChip Plus+" button on the menu bar, and then scrolls down to select from the menu of VChip Plus+ functions. Throughout the VChip Plus+ screens, an (blue) action button is used to unblock and a different (green) action button is used to block shows, times, channels, etc. As shown in FIGS 51 and 52, when the highlighted tile is currently unblocked, the blue action button label is blank and the green action button is labeled "Block." When the highlighted tile is blocked, the blue action button is labeled "Unblock" and the green action button label is blank, except if the highlighted tile is a show title. If a blocked show title tile is highlighted, the green action button is labeled "Schedule," providing access to the Schedule screen to modify the blocking frequency from the default of once to daily or weekly.

30 Once a show is blocked, an info. box displays a message of:

1 "<Show title> has been Blocked on <day, date>. Press the <key> to enter the Schedule to block  
<Show title> Daily or Weekly."

5 Pressing the VCR Plus+ key on the remote displays the VCR Plus+ interface in the Guide's  
Schedule screen. The user may input a Plus Code and then select the action they wish to take on  
the program: record (the default), watch, or block. These options will appear as tiles in the Plus  
Code entry area.

10 Similar to the watch and record features, a blocked show may be set to be blocked once,  
daily or weekly. This is accomplished by placing any individual show (this does not apply to all  
shows set to be blocked by channel, time or rating) that is set to be blocked into the Schedule  
queue. These blocked shows will be mixed in with the shows set to record or watch in  
chronological order. By entering the Schedule, either by pressing the green action button while  
highlighting a blocked show in the VChip Plus+ or the GUIDE Plus+ screens or from the  
Schedule button on the menu bar, the user may modify the frequency of the block in the same way  
they may do so for shows set to record or watch, by pressing an action button labeled "Change."  
15 This will cycle through the frequency choices. Modifying the frequency can only be done while  
the guide is in Master Mode.

Scheduled events (shows scheduled to record, watch or blocked) can be stored in a non-  
volatile memory such as an EEPROM. Thus, if a power outage occurs, the Scheduled events will  
be saved.

20 VChip Plus+ in GUIDE mode uses two data sources in combination to determine whether  
a show should be blocked: data downloaded and stored in the guide (channel lineups, show  
schedules, show ratings), and rating data transmitted over the VBI. Ordinary V-Chip devices use  
the data transmitted over the VBI to determine whether or not to block a show by rating. These  
ratings are sent a minimum of every 15 seconds. Thus, a show a parent may wish blocked, may  
25 be seen for up to 15 seconds before the blocking takes effect. VChip Plus+ in GUIDE mode will  
use show rating data already stored in the Guide to determine whether a show should be blocked  
as soon as it begins, and use the VBI data to confirm if the show was properly blocked. If it was  
blocked in error, then the block will be removed. In the event the Guide does not have rating data  
stored on a given show, the show will be accessible, until the VBI data is obtained and a blocking  
30 decision made.

Shows of participating networks, except news and sports programming, will be rated with  
either a TV Parental Guideline rating or an MPAA rating (for movies that have not been modified  
for TV). Networks using the ratings will also transmit the ratings during network commercials.  
Local commercials will most likely not carry the ratings of the contiguous show. VChip Plus+  
35

1 will provide the ability for the user to block unrated programming. The intent is to give parents  
control over whether they wish their children to watch the potentially objectionable content of  
some news and sports programs. As a side effect, local ads which do not carry ratings will be  
blocked. In the circumstance where a local ad is surrounded by a rated show and unrated shows  
5 have been blocked, the user may find they are able to watch the show. However, the ad is  
blocked within about 15 seconds of appearing. The show will be re-displayed after the rating has  
been interpreted by VChip Plus+, potentially up to about 15 seconds after the show  
recommenced. Ads linked to shows that have been blocked by the blocking of the individual  
show, show channel, show theme, show rating, or show time slot will be denied access to (as with  
10 any blocked show) until the Master Password is input. When an ad linked to a show is  
highlighted, the blocking message will appear in the PIP.

Additionally, turning a channel off in the Editor does not result in blocking all access to  
that channel. Specifically, if an ad with a show linked to a channel turned off in the Editor is  
15 displayed, the user can still schedule that show for recording or watching, or tune to its related  
channel by pressing the OK button. Additionally, the PIP will tune to the channel related to the  
ad when the ad is highlighted, even though that channel has been turned off.

The EPG requests that the user provide certain profile information, including but not  
limited to: the user's zip code; television, cable, and satellite services to which the user subscribes;  
the length of said subscriptions; the type of television; the age of the television; where the  
television was purchased; the user's top favorite channels; the user's favorite types of programs;  
and the times during which the user is most likely to watch television. If the user declines to  
provide this information, the EPG will attempt to "learn" the information as described in a co-  
pending Patent Application Serial No. 09/120,488 ("SYSTEMS AND METHODS FOR  
20 DISPLAYING AND RECORDING CONTROL INTERFACE WITH TELEVISION  
PROGRAMS, VIDEO, ADVERTISING INFORMATION AND PROGRAM SCHEDULING  
INFORMATION"), filed July 21, 1998, the disclosures of which is incorporated herein by  
reference, as if fully stated here, for all purposes.

When the TV is powered on, the display will depend upon whether Auto-Guide-On is  
30 activated, the entry show has been blocked, or the TV remote or front panel was used to turn on  
the TV. If Auto-Guide-On is activated, the Guide will always appear when the TV is turned on  
using the remote. If a Master Password has been set, the user will have access to shows, features  
and screens provided by the User Profile. If the entry show has not been blocked, the show video  
will appear in the PIP. All shows, channels, times, etc. that are blocked will be so marked within  
the Guide. The user will have access to all unrestricted shows and features and screens of the  
35

1 Guide without the need to enter a password. Upon attempting to access a restricted show (by  
pressing the OK or Guide key), feature (recording via action buttons, any enabled buttons on the  
remote - likely the record button - and via the VCRPlus+ key) or screen (scrolling into or pressing  
5 OK from menu bar), a password dialog box will appear in the info. box (see FIG. 66). If the user  
correctly inputs the Master Password, they obtain access to all shows, areas of the guide and  
features. If the user does not input the Master Password, they will maintain access as defined by  
the User Profile. If the entry show has been blocked, the PIG will be black and contain the  
following message: "Show Blocked by VChip Plus+."

10 If Auto-Guide-On is not activated, the Guide will not appear when the TV is turned on  
using the remote. If a Master Password has been set, the user will have access to shows, features  
and screens provided by the User Profile. If the entry show has not been blocked, the show video  
will appear on screen. If the entry show has been blocked, the TV video will be covered with a  
password dialog box (see FIG. 66). Again, if the users correctly inputs the Master Password, they  
15 obtain access to all shows, areas of the guide and features. If the users do not input the Master  
Password, they will maintain access as defined by the User Profile.

In the event that the TV is turned on from the front panel of the TV, Auto-Guide-on is  
not active. VChip Plus+ in-Guide will operate as restricted by the User Profile, until the Master  
Password is input via the remote. There is no way to enter the Master Password without the  
remote control.

20 A user, intending on circumventing the VChip Plus+ blocking, may attempt to remove  
power from the TV with the hope that the blocking settings will be lost. Due to limitations in  
available EE ROM, not all settings can be stored in EE ROM. Following is a desired set of setting  
to be stored, in order of priority if EE ROM space permitting:

- 25 1. Master Password
2. blocking by ratings
3. blocking by channel
4. blocking by time
5. blocking by individual show in the Schedule (the next several items in the Schedule  
will be saved. This will be a combination of shows scheduled to record, watch or block.)
- 30 6. blocking features (recording, watch).

In the event of a power failure that exceeds the supercap power capabilities, the user will  
have the choice of two power outage settings (the default is number 1 below, the Master will  
select a setting in the VChip Plus+ Feature screen):

1           1.       deny all access to the TV until the Master Password is input. Access to the Guide will be permitted with access denied to Setup, Editor and VChip Plus+ screens.

2.       allow access to everything not saved in EE ROM.

5           In setting, a power failure notice will present itself on screen every time the TV is powered on by the remote or by the front panel until the Master Password is input. This will inform the users of the power outage.

10           A VChip Plus+ Menu, with different features selected, is shown in FIGS. 43, 44, 46, 48, 49, 53, 56, 57, and 63. The VChip Plus+ Menu screen provides access to all the VChip Plus+ screens. These screens can only be accessed in Master Password Mode. The user scrolls down off the menu bar to highlight the tile of the desired feature. FIG. 44 shows the selection of TV Ratings. The user presses the OK/Select key to enter the screens related to the highlighted VChip Plus+ feature. Any user attempting to access these screens when not in Master Password mode will be prompted to enter the Master Password. If not in Master Mode, these menu tiles would be dark and inaccessible.

15           FIG. 45 shows the VChip Plus+ TV Parental Guidelines Ratings. From this screen the user may block all instances of shows with any given TV Parental Guideline Ratings, block an entire content rating or a combination of TV Parental Guidelines and content ratings. Blocking unrated programs is executed from this screen as well. The screen is divided into 3 areas: 1. Programs for children, 2. Programs for the entire audience, and 3. Unrated programs. The green action key is used to block and the blue action key is used to unblock the ratings. When a rating is blocked, that rating and all higher ratings in the same group are blocked. When a rating is unblocked, only that rating is unblocked.

20           VChip Plus+ MPAA Ratings is selected from the feature menu of FIG. 46 by highlighting Movie Ratings feature. FIG. 47 shows the movie Ratings screen responsive to the selection of the Movie Ratings feature in Fig. 46. From this screen the user may block all instances of shows with any given MPAA Ratings. When a rating is blocked, that rating and all higher ratings are blocked. When a rating is unblocked, only that rating is unblocked. In this example, all the movies with rating G are unblocked.

25           After the VChip Plus+ Grid feature is selected as shown in FIG. 49, the screen of FIG. 50 is displayed. The VChip Plus+ Grid is in gray tones except for the PIG, ads, logos and the action bar. This is intended for differentiating it from the Guide's Grid Screen. This screen displays ALL channels, whether or not they are turned off in the Editor. Individual shows or entire channels may be blocked from this screen as shown in FIGS. 51-52. All blocked shows or channels are in dark gray. However, channel ads do not appear in this grid. When blocked show



1 title is highlighted in Master mode, the blue and green action buttons are labeled "Remove" and  
"Change" respectively. When not in Master mode, the action button labels are blank.

After the VChip Plus+ Sort feature is selected as shown in FIG. 53, the screens of FIGS.  
5 54 and 55 are displayed. From the Sort screen the user may block all shows in a category, e.g.  
Movies, Sports or Children's programs. From the first level Sort screen of FIG. 54, the user may  
block all shows in a subcategory, e.g. Horror, Mystery, Baseball, Basketball, etc. From the  
second level Sort screen of FIG. 55, the user may block any individual show in a subcategory.

#### VChip Plus+ Time Settings

10 After the VChip Plus+ Time feature is selected as shown in FIG. 57, the screens of FIGS.  
58-62 are displayed. From these Time Settings screens, the user may block viewing by times of  
the day and/or days of the week. The user may highlight a day or time tile and block that entire  
day or that time for all days. Alternatively the user may block certain hours on any individual day.

After the VChip Plus+ Features function is selected, a features screen is displayed. From  
15 this Features screen, the user may block access to the record and/or watch functions.  
Additionally, the user may select a Power Outage setting from this screen. After the VChip Plus+  
Password feature is selected a Password screen is displayed. From this Password screen the user  
may set up the Master Password for the first time (if not done during initial setup) or may modify  
the current Master Password.

20 When a show, channel, time-slot, etc. is blocked, the title(s) identifying the show, channel,  
time slot, etc. are modified to have different background colors as shown in FIG. 65. In this  
screen, *The Simpsons*, *Young Philadelphians* and the 10:00 p.m. time slot are indicated as  
blocked by the dark gray background.

#### 25 MASTER PASSWORD CONTROL

In one embodiment of the present invention, a 4 digit numeric Master Password scheme  
is used to enable the establishment of a User Profile and provide unlimited (unprotected) access  
to the Guide screens and shows once a Master Password is established. Only one Master  
Password can be established. It is established either during initial setup (see FIG. 67) or later by  
30 entering the Password screen from the Guide menu (see FIG. 43) or the TV mode. Once a  
Master Password is established, the Master Password must be entered to execute blocking or  
unblocking. The Master Password must also be entered to access the Setup, Editor, and VChip  
Plus+ screens. Once entered, the TV is in Master Password (unprotected) mode until the TV is  
turned off, the user exits VChip Plus+ mode, or a certain time delay, which starts from the time  
35 when the user correctly enters the password, has expired.

1 An user interface (UI) allows the users (parents) to pick their own passwords, and to disable the lockout when the passwords are lost. The functions of this UI include, but not limited to, the following:

5 (1) Fixed Overriding Password - This is hardwired in the equipment, and can always be used in case the user-defined password is lost.

(2) Repeating entry X times establishes new password - If the password is lost, the new password can be made by repeatedly entering the same password X number of times, and at the end of the process informing the user that the new password has been established.

10 (3) Power interruption after certain length of time allows new password to be entered - This allows the parent to "pull the plug" of the equipment and regain control after the password has been lost.

(4) Password review/re-entry through special service mode - By restricting that only the parents can access the special service mode, the password can be viewed safely in this way.

15 The above approaches of password handling can be further enhanced by recording the last time that the password was used or changed.

FIG. 39 is a flow chart of the master password operation. Obviously not all operations would require a password. As shown in block 391, the following operations have password protection: changing the password, changing the V-Chip ratings, deleting a "blocked" program or deleting a "blocked" channel, changing the "Babysitter" function, unblocking a program or a channel within the "Babysitter" function, changing the clock (this is because a different clock will cause VChip Plus+ to block a different program), and changing the channel map (this is because a different channel map will cause VChip Plus+ to block a different channel).

20 A Master password user can establish specific viewing (blocking) parameters for the User Profile, establish specific feature use limits (disable Recording or Watch) for the User Profile, modify the Master password, or enter all Guide screens and view, record or schedule to watch all shows. But, it is not necessary to input the Master Password to access unrestricted shows, channels, time slots, features and Guide screens. Whenever access to a blocked show (tuning to it in TV mode or pressing OK or Guide keys from the Guide) or a restricted screen (scrolling into or pressing OK from menu bar) or feature (recording via action buttons, any enabled buttons on the remote - likely the record button - and via the VCRPlus+ key) of the guide is attempted, a dialog box appears on screen requesting the password (see FIG. 66).

25 If the password is correctly input, access will be granted. If the password is incorrectly input, an error screen will be displayed. Once the password is correctly input, access to all shows and areas of the guide will be enabled until the TV is turned off, the user exits VChip Plus+ mode,

1 or a certain time delay, which starts from the time when the user correctly enters the password,  
has expired. Additionally, once the password is correctly entered, it can be changed by the user  
as shown in block 396. However, repeating the entry of a consistently incorrect password for a  
5 certain number of times can establish a new password. The new password is established by  
repeatedly entering the same incorrect password a certain number of times, and at the end of the  
process confirming the newly established password (block 395). The date and time of the last  
time that the password was used is recorded and, as shown in block 397, that date and time for  
the previous login is then displayed.

10 Once a Master Password is created, restrictions on access to certain Guide screens is  
automatically established as modifications to these screens may defeat blocking effectiveness.  
Only the Master may establish blocks. Access-blocking may be established on: individual shows;  
channels; themes (entire themes such as Movies, Sports, Children's or sub-themes such as  
Adventure, Drama, Baseball, Basketball, etc.); TV Parental Guideline or MPAA rating (including  
15 un-rated shows); time slot or day; and/or access to the Recording and Watch features.

15 When a show is blocked either by the blocking of the individual show, show channel, show  
theme, show rating, or show time slot, and a user without entering the Master Password tries to  
access a blocked element, access to the blocked element will be denied and a dialog box  
requesting the Master Password will be displayed (see FIG. 66). Failure to input the Master  
Password will result in maintaining the block and the function of the Guide will be as follows:

- 20
- No viewing of a blocked show in TV mode,
  - No viewing of a blocked show in the PIP in TV mode,
  - No viewing of the blocked show in the PIG in Guide mode (the PIG will contain a  
message indicating the show is blocked),
  - No scheduling of the blocked show to record (via the Guide or VCR Plus+), and
  - 25 • No scheduling the blocked show to watch (via the Guide or VCR Plus+)

30 However, the descriptions for blocked shows will be available. Also, blocked shows may  
still be scheduled to record or watch once the Master Password is input. Any show scheduled to  
record or watch will be recorded or watched even if it is blocked previously or subsequently  
blocked.

30 The record and watch features may be blocked also. If a user attempts to schedule a show  
to record or watch when the feature is blocked and the guide is not in Master Mode, the action  
will be denied and the Master Password dialog box will appear. If the Master Password is not  
input, the function of the Guide will be modified as follows:

- 35
- If the Record feature is blocked:

1                   - the user may not schedule any show to record via the Guide or VCR Plus+  
                  - all shows scheduled to record will be marked as blocked in the Schedule so the  
user may not remove it or modify its frequency.

5           •       If the Watch feature is blocked:

                  - the user may not schedule any show to watch via the Guide or VCR Plus+  
                  - all shows scheduled to watch will be marked as blocked in the Schedule so the  
user may not remove it or modify its frequency.

          However, any show scheduled to record or watch by the Master will still be executed even  
if these features are blocked. If these features are not blocked, a user without the Master  
10 Password may enter the Record/Watch Schedule and make changes to any shows in the queue.

          When a Master Password is set, and a user without the Master Password is using the TV  
or the Guide, access to the Setup, Editor, and VChip Plus+ screens will be denied. A VChip  
Plus+ Dialog box appears whenever access has been denied to a show, channel, time screen,  
15 feature, etc. via a VChip Plus+ block. This dialog box provides for input of the Master Password  
for access as shown in FIG. 66. Additional dialog boxes appear if the input is not the correct  
password.

          The GUIDE Plus+ system supports semi-automatic setup with minimal user intervention.  
The basic data required from the user includes, Country, Zip Code/Postal Code, whether the  
20 service is Over-the-Air (OTA) or cable, Cable Box, chosen from on-screen list of brand names,  
VCR Brand, chosen from on-screen list of brand names, cable Box output RF channel (if  
applicable). However, VChip Plus+ includes additional setup screens directly following the Cable  
Box output questions. These screens will appear only the first time the user goes through setup,  
thereafter, the user will use the VChip Plus+ password screen to set a Master Password or change  
25 it.

          FIG. 67 depicts the Master Password Setup. The user is asked if he/she wishes to set up  
a Master Password now. If No, then a screen appears communicating that the user may set up  
a Master Password later by entering the VChip Plus+ Password screen within GUIDE Plus+ (see  
FIG. 68). If Yes, then the user is presented with a password creation screen as indicated by FIG.  
30 69. Once a password is input, a confirmation screen is displayed (see FIG. 70). If the user  
correctly inputs the password a second time, the acceptance screen is displayed (see FIG. 71).  
If the user incorrectly inputs the password a second time, the failure screen shown in FIG. 72 is  
displayed. When the user presses the <OK> button, the Master Password Setup Screen of FIG.  
67, is displayed. The user may try again now or input NO and try later.

1           It is apparent from the foregoing that the present invention satisfies an immediate need for  
a parental control apparatus which can be used with the V-Chip system. This parental control  
apparatus may be embodied in other specific forms and used with a variety of communications  
5       equipment without departing from the spirit or essential attributes of the present invention. It is  
therefore desired that the present embodiment be considered in all respects as illustrative and not  
restrictive, reference being made to the appended claims rather than the foregoing description to  
indicate the scope of the invention.

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## 1 CLAIMS:

5 1. A method of exercising access control over a television using a parental control user interface having different functions that are available to a user in a master mode of operation, said method comprising the steps of:

inputting a password for entering into the master mode for obtaining access to the functions of the parental control user interface;

10 entering a criterion for blocking a television program from being viewed or recorded and overriding a blocked television program to be viewed or recorded;

selecting a plurality of programs for viewing or recording;

15 prompting the user not in the master mode to enter the password if the selected plurality of programs meet the blocking criterion and do not meet the overriding criterion; and

unblocking the selected plurality of programs that meet the blocking criterion and do not meet the overriding criterion so they can be viewed or recorded, if the user enters the password responsive to the prompt.

2. An apparatus for parental control of a television receiver comprising:

a television display;

20 a tuner for receiving a plurality of television programs and passing one of said television programs;

a memory for storing a blocking override list comprising information relating to at least one television program, and an enable override list comprising information relating to at least one television program;

25 a microprocessor selectively operable in a blocking mode and an unblocking mode, said microprocessor generating a blocking command in said unblocking mode only when the television program passed by the tuner corresponds to said information relating to one of the television program in said blocking override list, and generating a blocking command in said blocking mode only when the television program passed by the tuner does not correspond to said information relating to any one of the television programs in said enable override list; and

30 a blocking circuit for coupling the television program passed by the tuner to said television display, said blocking circuit having a control input which causes the television program passed by the tuner to be blocked from said television display in response to the blocking command.

1           3.     The apparatus of claim 2 wherein the television program passed by the tuner  
includes rating information, and further comprising a vertical blanking decoder for extracting said  
rating information from the television program, said microprocessor being selectively operated  
5     in one of said blocking mode and unblocking mode based on said extracted rating information.

          4.     The apparatus of claim 3 wherein said memory comprises rating information stored  
therein, and said microprocessor is selectively operated in one of said blocking mode and  
unblocking mode based on a comparison between the extracted rating information from the  
10    television program and the rating information stored in memory.

          5.     The apparatus of claim 2 wherein the blocking override list information comprises  
channel, date, time and length for each of its respective television programs, and the enable  
override list information comprises channel, date, time and length for each of its respective  
15    television programs.

          6.     A method for exercising parental control over a television receiver, comprising the  
steps of:  
          creating an enable override list comprising information relating to at least one television  
20    program to be watched or recorded in a blocking mode;  
          creating a blocking override list comprising information relating to at least one television  
program to be blocked in an unblocking mode;  
          selecting the blocking mode or the unblocking mode;  
          permitting only television programs relating to said information in the enable override list  
25    to be watched or recorded when the blocking mode is selected; and  
          blocking only television programs relating to said information in the blocking override list  
from being watched or recorded when the unblocking mode is selected.

          7.     The method of claim 6 wherein the selecting step further comprises the steps of  
30    programming the television receiver with rating information, extracting rating information  
broadcast with a television program tuned by the television receiver, comparing the programmed  
rating information with the broadcast rating information, and selecting the blocking mode or  
unblocking mode as a function of said comparison.

1           8.       The method of claim 6 wherein the step of creating the enable override list  
comprises entering information relating to channel, date, time and length of the television  
programs to be watched or recorded in the blocking mode, and the step of creating the blocking  
override list comprises entering information relating to channel, date, time and length of the  
5 television programs to be blocked in the unblocking.

          9.       A method for exercising parental control, comprising the steps of:  
receiving a television signal carrying a television program and a rating for the television  
program;

10           inputting a rating level;  
extracting the television program rating from the received television signal;  
comparing the extracted television program rating with the inputted rating level;  
displaying the television program carried by the received television signal if the extracted  
television program rating is below the inputted rating level;

15           blocking the television program carried by the received television signal if the extracted  
television program rating is above the inputted rating level;

          selecting a specific television program which, when carried by the received television  
signal, will override the comparing step; and

20           displaying the specific television program, when carried by the received television signal,  
if its rating is above the inputted rating level, or blocking the specific television program, when  
carried by the received television signal, if its rating is below the inputted rating level.

          10.      The method of claim 1 wherein the required password is established by a first-time  
user.

25           11.      The method of claim 1 wherein the established password can be changed by a user  
when in the master mode.

30           12.      The method of claim 1 wherein the established password can be changed by  
repeatedly entering an incorrect password for a predetermined number of times and confirming  
the repeatedly entered password at the end of the entering step.

          13.      The method of claim 1 wherein the master mode of operation remains in effect  
until the television is turned off, the user exits the master mode, or a time delay expires.



1           14.    The method of claim 1 wherein the parental control functions include a power-outage function to deny access to the television until the password is properly entered, after a power outage.

5           15.    The method of claim 1 wherein the criterion is entered in a normal television picture viewing mode using an on-screen menu.

          16.    The method of claim 1 wherein the criterion is entered in a guide mode using an on-screen menu activated from a program schedule guide.

10           17.    The method of claim 1 wherein the step of entering a criterion comprises: selecting a set of television programs to be watched or recorded in a babysitting mode; and permitting only the selected set to be watched or recorded in the babysitting mode without inputting the password, to the exclusion of all other programs being telecast.

15           18.    The method of claim 1 wherein the step of entering a criterion comprises: selecting a television program to be watched or recorded; activating a first on-screen button to block the selected program if the selected program is unblocked; and  
20           activating a second on-screen button to unblock the selected program if the selected program is blocked.

          19.    The method of claim 1 wherein the step of entering a criterion comprises: tuning to a television program;  
25           activating a first on-screen button to block the television program if the program is unblocked; and  
          activating a second on-screen button to unblock the television program if the program is blocked.

30           20.    The method of claim 1 wherein the step of entering a criterion comprises inputting a parental control level and the prompting step comprises extracting a parental control rating from a television signal carrying the selected program, comparing the rating with the parental control level, and blocking the selected program if its rating falls below the parental control level.

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1           21.     The method of claim 1 wherein the criterion is blocking or overriding a blocked television channel or television program.

5           22.     The method of claim 21 wherein the blocked or overridden television channel or program is marked in a parental control review list.

          23.     The method of claim 22 wherein the step of entering a criterion comprises editing the parental control review list with respect to channel, date, time and length.

10          24.     The method of claim 16 wherein the on-screen menu includes a grid feature for blocking or overriding all television channels whether or not the channels are already blocked or overridden, a sort feature for blocking or overriding all television programs in a category, and a time feature for blocking or overriding by a time of a day or a day of a week.

15          25.     The method of claim 1 wherein the established password can be changed by entering a second password that is hardwired in the system.

20          26.     The method of claim 1, further comprising providing access to a predetermined set of functions specified in a user profile if the user does not enter the password.

          27.     The method of claim 1, further comprising restoring the criterion after the user is no longer in the master mode.

25          28.     An apparatus for parental control of a television comprising:  
          a microprocessor;  
          a display screen;  
          a parental control user interface displayed on the screen having different functions, for activating the microprocessor;  
          means for inputting a password for entering into a master mode of operation to obtain  
30   access to the functions of the parental control user interface;  
          means for entering a criterion for blocking a television program from being viewed or recorded and overriding a blocked television program;  
          means for selecting a plurality of programs for viewing or recording;  
          means for prompting a user not in the master mode to enter the password if the selected  
35   plurality of programs meet the blocking criterion and do not meet the overriding criterion;

1 means for unblocking the selected plurality of programs that meet the blocking criterion  
and do not meet the overriding criterion so they can be viewed, if the user enters the password  
responsive to the prompt; and

means for restoring the criterion after the user is no longer in the master mode.

5 29. The apparatus of claim 28 wherein the master mode of operation remains in effect  
until the television is turned off, the user exits the master mode, or a time delay expires.

10 30. A method of exercising access control over a television using a parental control  
user interface having different functions that are available to a user in a master mode of operation,  
said method comprising the steps of:

inputting a password for entering into the master mode for obtaining access to the  
functions of the parental control user interface;

15 entering a first criterion for blocking television programs from being viewed or recorded,  
or overriding blocked television programs to be viewed or recorded;

entering a second criterion for blocking television programs from being viewed or  
recorded, or overriding blocked television programs to be viewed or recorded;

selecting a program for viewing or recording;

20 prompting the user not in the master mode to enter the password if the selected program  
meets the blocking criteria and does not meet the overriding criteria; and

unblocking the selected program that meets the blocking criterion and does not meet the  
overriding criteria so it can be viewed, if the user enters the password responsive to the prompt.

25 31. The method of claim 30, further comprising entering a third criterion for blocking  
television programs from being viewed or recorded.

32. A method of exercising access control over a television using a parental control  
user interface having different functions that are available to a user in a master mode of operation,  
said method comprising the steps of:

30 inputting a password for entering into the master mode for obtaining access to the  
functions of the parental control user interface;

entering a criterion for blocking a television program from being viewed or recorded and  
overriding a blocked television program to be viewed or recorded;

35 selecting a program for viewing or recording;

1           prompting the user not in the master mode to enter the password if the selected program  
meets the blocking criterion and does not meet the overriding criterion; and  
          unblocking the selected program that meets the blocking criterion and does not meet the  
overriding criterion so it can be viewed, if the user enters the password responsive to the prompt,  
5           wherein the master mode of operation remains in effect until the television is turned off, the user  
exits the master mode, or a time delay expires.

33.    The method of claim 32, further comprising entering a second criterion for  
blocking television programs from being viewed or recorded.

10           34.    A method of exercising access control over a television using a parental control  
user interface having different functions that are available to a user in a master mode of operation,  
said method comprising the steps of:

15           inputting a password for entering into the master mode for obtaining access to the  
functions of the parental control user interface;

          entering a criterion for blocking a television program from being viewed or recorded;

          selecting a plurality of programs for viewing or recording;

          prompting the user not in the master mode to enter the password if the selected plurality  
of programs meet the blocking criterion; and

20           unblocking the selected plurality of programs that meet the blocking criterion, if the user  
enters the password responsive to the prompt.

35           35.    A method of exercising access control over a television using a parental control  
user interface having different functions that are available to a user in a master mode of operation,  
said method comprising the steps of:

          inputting a password for entering into the master mode for obtaining access to the  
functions of the parental control user interface;

          entering a first criterion for blocking television programs from being viewed or recorded;

30           entering a second criterion for blocking television programs from being viewed or  
recorded;

          selecting a program for viewing or recording;

          prompting the user not in the master mode to enter the password if the selected program  
meets the blocking criteria; and

35           unblocking the selected program that meets the blocking criterion so it can be viewed, if  
the user enters the password responsive to the prompt.

1           36.     The method of claim 35, further comprising entering a third criterion for blocking  
television programs from being viewed or recorded.

5           37.     A method of exercising access control over a television using a parental control  
user interface having different functions that are available to a user in a master mode of operation,  
said method comprising the steps of:

          inputting a password for entering into the master mode for obtaining access to the  
functions of the parental control user interface;

          entering a first criterion for blocking television programs from being viewed or recorded;

10          entering a second criterion for blocking television programs from being viewed or  
recorded;

          selecting a program for viewing or recording;

          prompting the user not in the master mode to enter the password if the selected program  
meets the blocking criteria; and

15          unblocking the selected program that meets the blocking criterion so it can be viewed, if  
the user enters the password responsive to the prompt, wherein the master mode of operation  
remains in effect until the television is turned off, the user exits the master mode, or a time delay  
expires.

20          38.     The method of claim 36, further comprising entering a third criterion for blocking  
television programs from being viewed or recorded.

          39.     An apparatus for parental control of a television receiver, comprising:

          a television display;

25          a tuner for receiving a plurality of television programs and passing one of the television  
programs;

          a memory for storing a blocking override list comprising information relating to at least  
one television program, and an enable override list comprising information relating to at least one  
television program;

30          a microprocessor selectively operable in a blocking mode and an unblocking mode, the  
microprocessor generating a blocking command in the unblocking mode only when the television  
program passed by the tuner corresponds to the information relating to one of the television  
program in the blocking override list, and generating a blocking command in the blocking mode  
only when the television program passed by the tuner does not correspond to the information  
35          relating to any one of the television programs in the enable override list; and

1 a blocking circuit for decoupling the television program from the television display in  
response to the blocking command.

5 40. An apparatus for parental control of a television comprising:  
a microprocessor;  
a display screen;  
a parental control user interface displayed on the screen having different functions, for  
activating the microprocessor;  
means for inputting a password for entering into the master mode for obtaining access to  
10 the functions of the parental control user interface;  
means for entering a first criterion for blocking television programs from being viewed or  
recorded, or overriding blocked television programs to be viewed or recorded;  
means for entering a second criterion for blocking television programs from being viewed  
or recorded, or overriding blocked television programs to be viewed or recorded;  
15 means for selecting a program for viewing or recording;  
means for prompting the user not in the master mode to enter the password if the selected  
program meets the blocking criteria and does not meet the overriding criteria; and  
means for unblocking the selected program that meets the blocking criterion and does not  
meet the overriding criteria so it can be viewed, if the user enters the password responsive to the  
20 prompt.

41. An apparatus for parental control of a television comprising:  
a microprocessor;  
a display screen;  
25 a parental control user interface displayed on the screen having different functions, for  
activating the microprocessor;  
means for inputting a password for entering into the master mode for obtaining access to  
the functions of the parental control user interface;  
means for entering a first criterion for blocking television programs from being viewed or  
30 recorded;  
means for entering a second criterion for blocking television programs from being viewed  
or recorded;  
means for selecting a program for viewing or recording;  
means for prompting the user not in the master mode to enter the password if the selected  
35 program meets the blocking criteria; and

1 means for unblocking the selected program that meets the blocking criterion, if the user  
enters the password responsive to the prompt.

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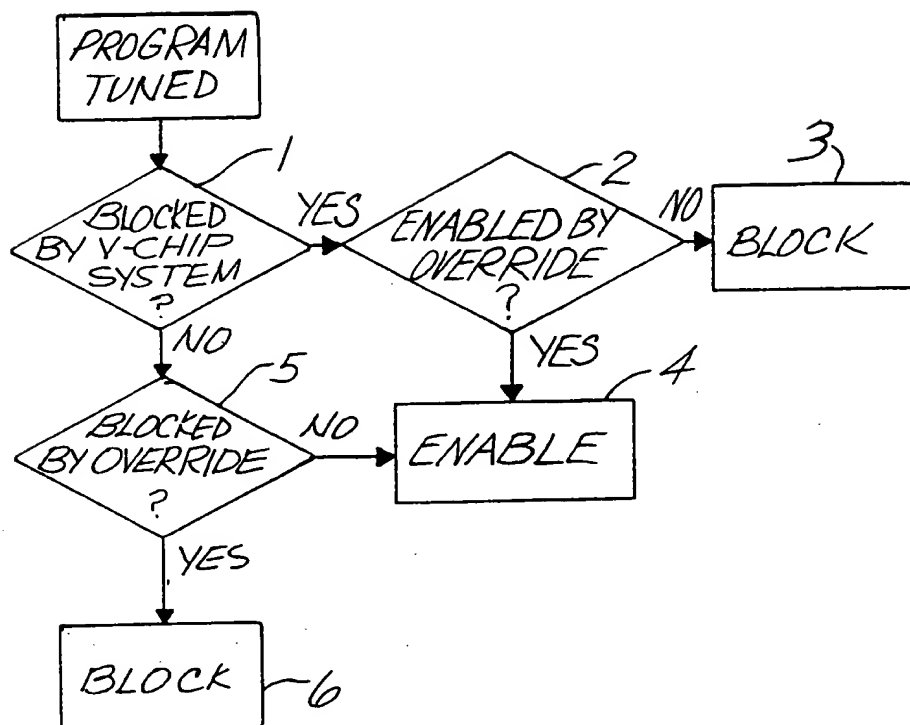
20

25

30

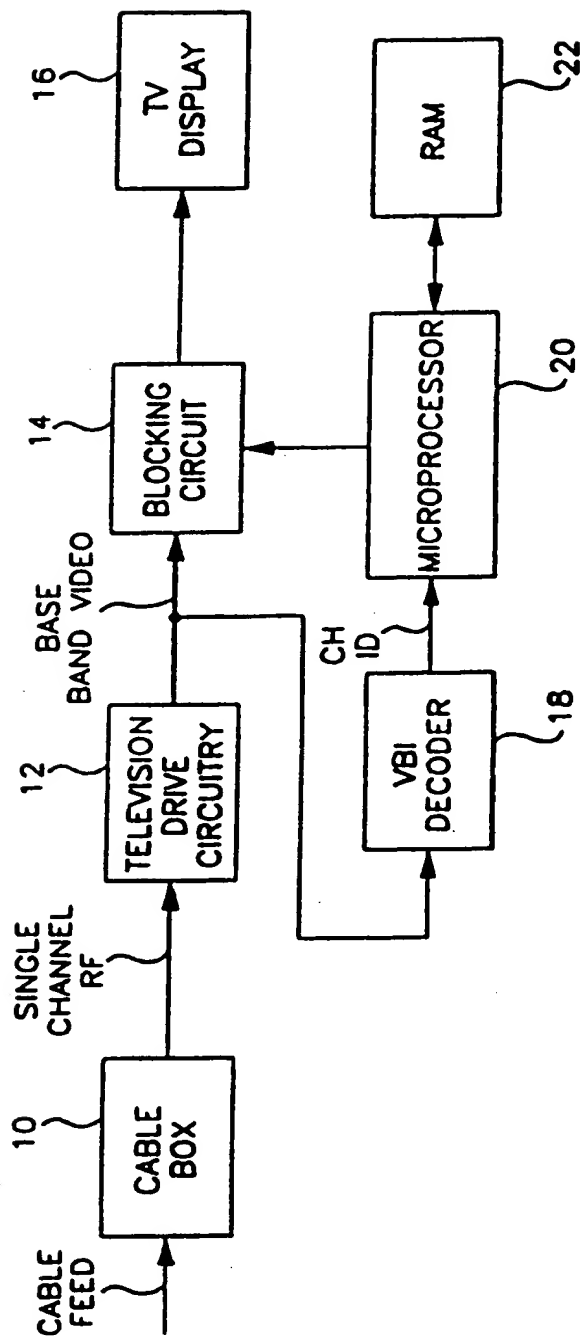
35

1/69

*Fig. 1*

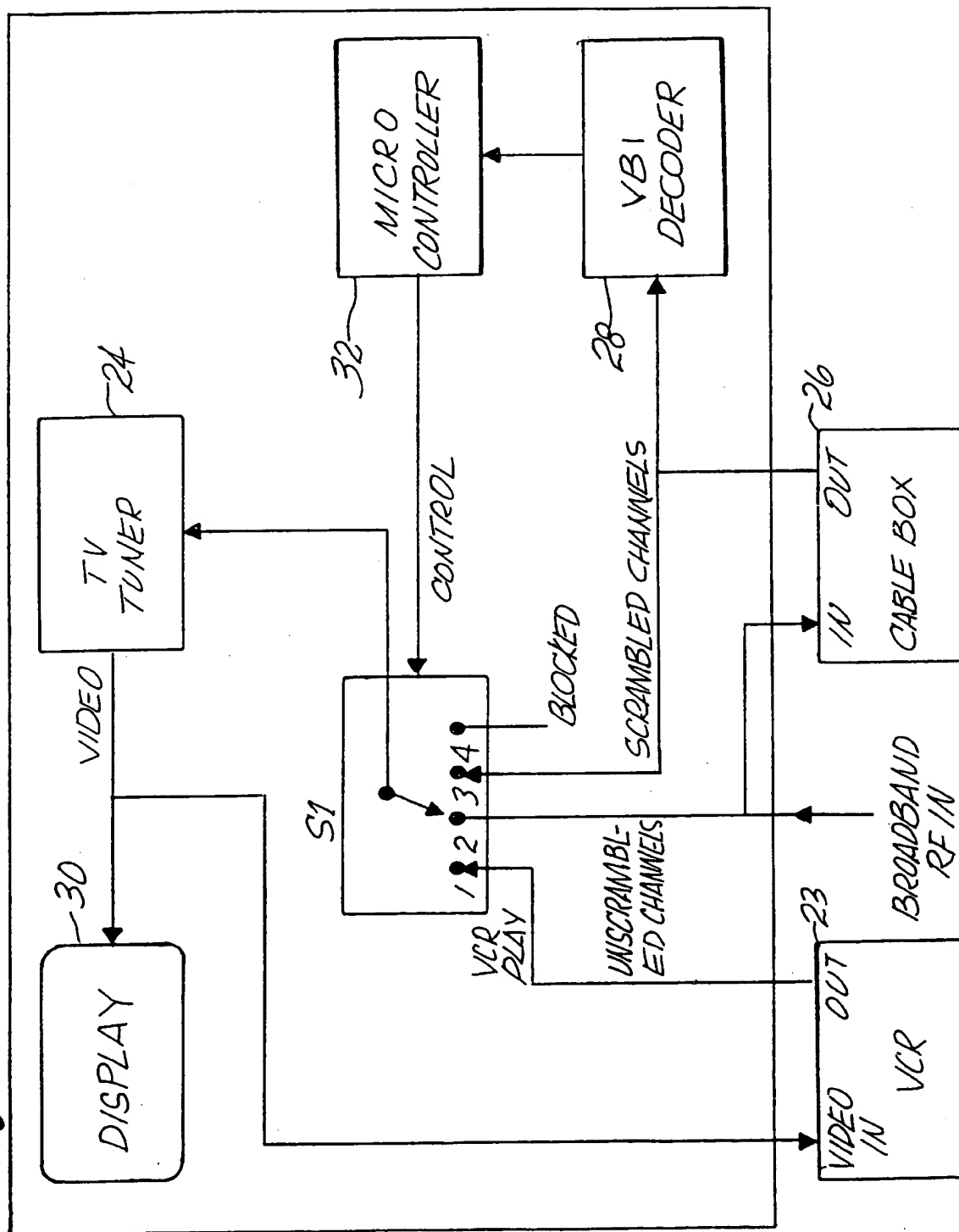


2/69

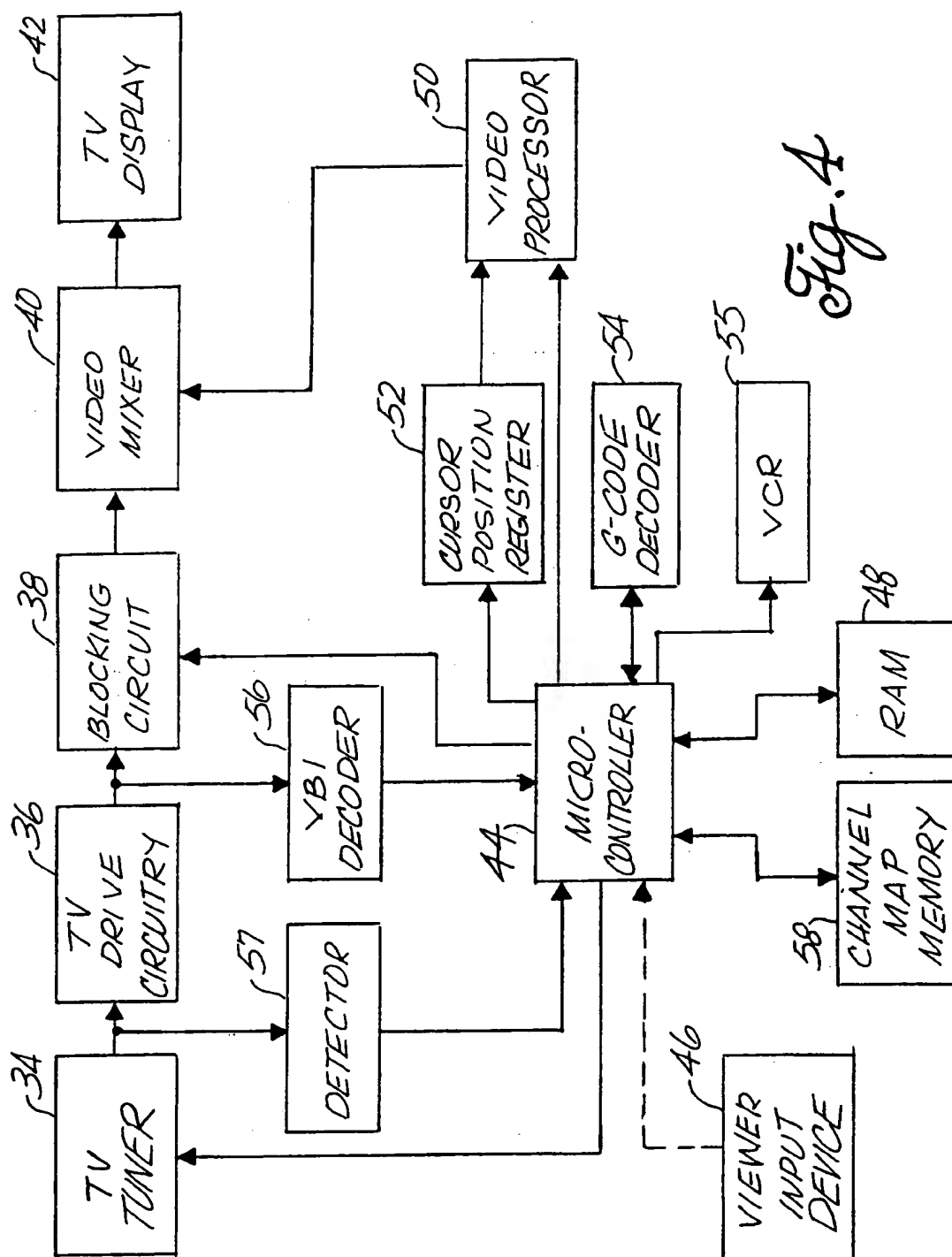
*Fig. 2*

3/69

Fig. 3



4/69



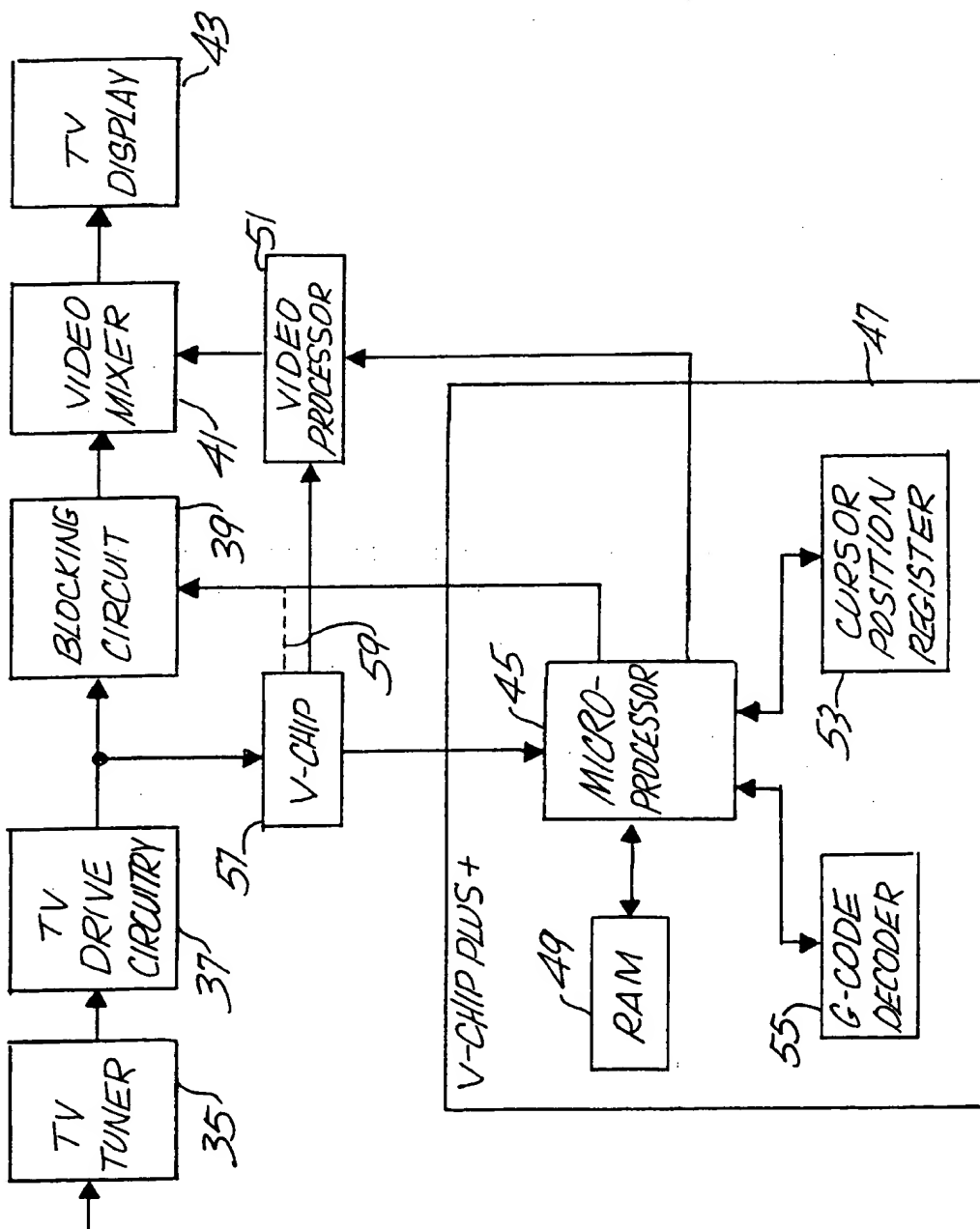
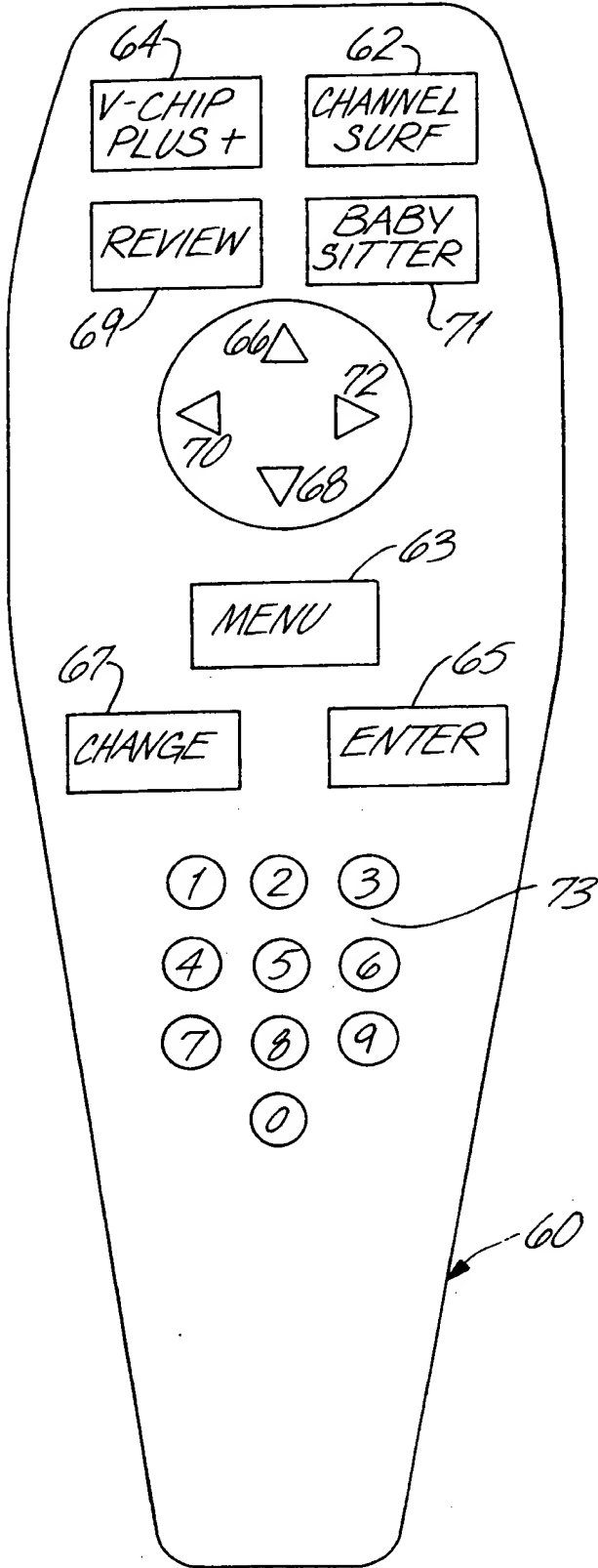


Fig. 5

Fig. 6



7/69

*Fig. 7*

A hand-drawn diagram showing a table with 14 rows and 2 columns. The table is enclosed in a rectangular border. Above the table, there are two callouts: '76' with an arrow pointing to the first column, and '78' with an arrow pointing to the second column. To the right of the table, there is a callout '74' with an arrow pointing to the right side of the table, and a callout '80' with an arrow pointing to the right side of the table, specifically near the row containing 'KABC' and '7'.

KCBS	2
KEYT	3
KNBC	4
KTLA	5
CH	6
KABC	7
KCAL	9
FOX	X
KCOP	13
KSCI	18
KWHY	22
KVCR	24
KCET	28
KMEX	X

8/69

*Fig. 8*

82

KCBS	2			
KEYT	3			
KNBC	4			
KTLA	5			
CH	6			
KABC	7	X	REVIEW	V-CHIP PLUS+
KCAL	9		BLOCK THIS CHANNEL	
FOX	X			
KCOP	13			
KSCI	18			
KWHY	22			
KVCR	24			
KCET	28			
KMEX	X			

80

9/69

*Fig. 9*

		82		
80	KCBS	2		
	KEYT	3		
	KNBC	4		
	KTLA	5		
	CH	6		
	KABC	X	✓	REVIEW
	KCAL	9	V-CHIP PLUS+	
	FOX	X		
	KCOP	13		
	KSCI	18		
	KWHY	22		
	KVCR	24		
	KCET	28		
	KMEX	X		



10/69

*Fig. 10*

80	KCBS	2			
	KEYT	3			
	KNBC	4			
	KTLA	5			
	CH	6			
	KABC	X	✓	REVIEW	V-CHIP PLUS+
	KCAL	9	VCR/V-CHIP PLUS+ REVIEW LIST		
	FOX	X			
	KCOP	13			
	KSCI	18			
	KWHY	22			
	KVCR	24			
	KCET	28			
	KMEX	X			

11/69

*Fig. 11*

VCR/V-CHIP PLUS+REVIEW LIST

84	07 SAT 01/10	11:15p	1h55m+15m	96
	11 M-F	07:30p	1h40m-15m	
	28 M-F	04:00p	1h00m	
	35 WED 1/21	02:00p	2h10m+15m	
86	28 SAT WKLY	11:00a	1h55m+30m	
88	09 M-F	10:00p	1h00m	
90	02 SUN 01/18	10:00p	3h50m	

△▽ MOVE

 DELETE <◇ REDUCE PROGRAM LENGTH EXIT

12/69

*Fig. 12*

	KCBS	2			
	KEYT	3			
	KNBC	4			
	KTLA	5			
	CH	6			
80-	KABC	X	✓	REVIEW	V-CHIP PLUS+
	KCAL	9	GO TO V-CHIP PLUS+ SETUP SCREEN		
	FOX	X			
	KCOP	13			
	KSCI	18			
	KWHY	22			
	KVCR	24			
	KCET	28			
	KMEX	X			

13/69

*Fig. 13*

V-CHIP PLUS+ SETUP SCREEN	
HIGHEST ACCEPTABLE RATING:	
TV-PG PARENTAL GUIDANCE	
**	MODERATE VIOLENCE
*** *	INTENSE SEXUAL
**	COARSE LANGUAGE
**	SUGGESTIVE DIALOGUE
△▽	MOVE
CHANNEL SURF	CHANGE <◇◇ CHANGE
SAVE & EXIT	

14/69

*Fig. 14*

*V-CHIP PLUS+ SETUP SCREEN*

*HIGHEST ACCEPTABLE RATING:*

*TV-PG PARENTAL GUIDANCE*

	<i>NO VIOLENCE</i>
<i>****</i>	<i>INTENSE SEXUAL</i>
<i>**</i>	<i>COARSE LANGUAGE</i>
<i>**</i>	<i>SUGGESTIVE DIALOGUE</i>

*Δ▽ MOVE* *CHANGE* *◀▶ CHANGE*

*CHANNEL SURF* *SAVE & EXIT*

*95*

15/69

*Fig. 15*

<i>V-CHIP PLUS+ SETUP SCREEN</i>					
<p style="text-align: center;"><i>HIGHEST ACCEPTABLE RATING:</i></p> <div style="border: 1px solid black; padding: 5px; text-align: center; margin: 5px auto; width: 80%;"> <i>TV-PG PARENTAL GUIDANCE</i> </div>					
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td style="height: 15px;"></td></tr> <tr><td style="text-align: center;">*****</td></tr> <tr><td style="text-align: center;">*****</td></tr> <tr><td style="text-align: center;">*****</td></tr> </table>		*****	*****	*****	<p><i>GRAPHIC VIOLENCE</i></p> <p><i>EXPLICIT SEXUAL</i></p> <p><i>CRUDE LANGUAGE</i></p> <p><i>INDECENT DIALOGUE</i></p>
*****					
*****					
*****					
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;"> <div style="text-align: center;"> <div style="font-size: 0.8em;">Δ</div> <div style="font-size: 0.8em;">▽</div> </div> </div> <div> <i>MOVE</i> </div> </div> <div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 2px 5px; margin-right: 5px;"> <i>CHANGE</i> </div> <div style="margin: 0 5px;">◀▶</div> <div> <i>CHANGE</i> </div> </div> </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 10px;"> <div style="border: 1px solid black; padding: 2px 5px; width: 15%;"> <i>CHANNEL SURF</i> </div> <div> <i>SAVE &amp; EXIT</i> </div> </div>					

16/69

*Fig. 16*

A hand-drawn schematic of a VCR+ interface menu, enclosed in a rectangular border. The menu is organized into several sections:

- PLUSCODE:** A label followed by a rectangular box containing the text "17893\*---".
- VCR+ Controls:** A section on the left containing two stacked rectangular boxes labeled "RECORD" and "VIEW".
- V-CHIP Controls:** A section on the right containing two stacked rectangular boxes labeled "BLOCK" and "UNBLOCK".
- REVIEW LIST:** A horizontal rectangular box centered below the VCR+ and V-CHIP sections.
- Navigation and Action:** At the bottom, there are three elements: a set of navigation symbols (a left arrow, a right arrow, and a double right arrow) followed by the word "MOVE"; a rectangular box labeled "ENTER" followed by the word "ACCEPT"; and a rectangular box labeled "VCR+" followed by the word "EXIT".

A curved line on the right side of the menu area points to the number "96".

17/69

*Fig. 17*

96

PLUSCODE: 17893

VCR+	
	VIEW

V-CHIP+ BLOCK  
UNBLOCK

REVIE LIST

△◀▶ MOVE      ENTER ACCEPT

CHANNEL SURF      EXIT



18/69

*Fig. 18*

TO RECORD THE SHOW:	
KCAL 9 THU 2/12 10:00p - 11:00p	
98 <u>          </u>	<u>DAILY</u>   <u>WEEKLY</u>
◀▶ MOVE	<u>ENTER</u> ACCEPT
<u>CHANNEL</u> <u>SURF</u>	EXIT

19/69

*Fig. 19*

VCR/V-CHIP PLUS+ SETUP SCREEN	
COUNTRY	USA
ZIPCODE	91106
VIDEO SOURCE	CABLE BOX <i>100</i>
VCR BRAND	PHILLIPS
CABLE BOX	PIONEER
NEXT	
◀ HOME	ENTER ACCEPT
MENU EXIT	CHANGE ▶▶ CHANGE

20/69

*Fig. 20*

VCR/V-CHIP PLUS + SETUP SCREEN	
COUNTRY	USA
ZIP CODE	91106
VIDEO SOURCE	DIRECT CABLE 100
VCR BRAND	PHILLIPS
CABLE BOX	PIONEER
	NEXT 102
◀ HOME	ENTER ACCEPT
MENU EXIT	CHANGE ▶ CHANGE

21/69

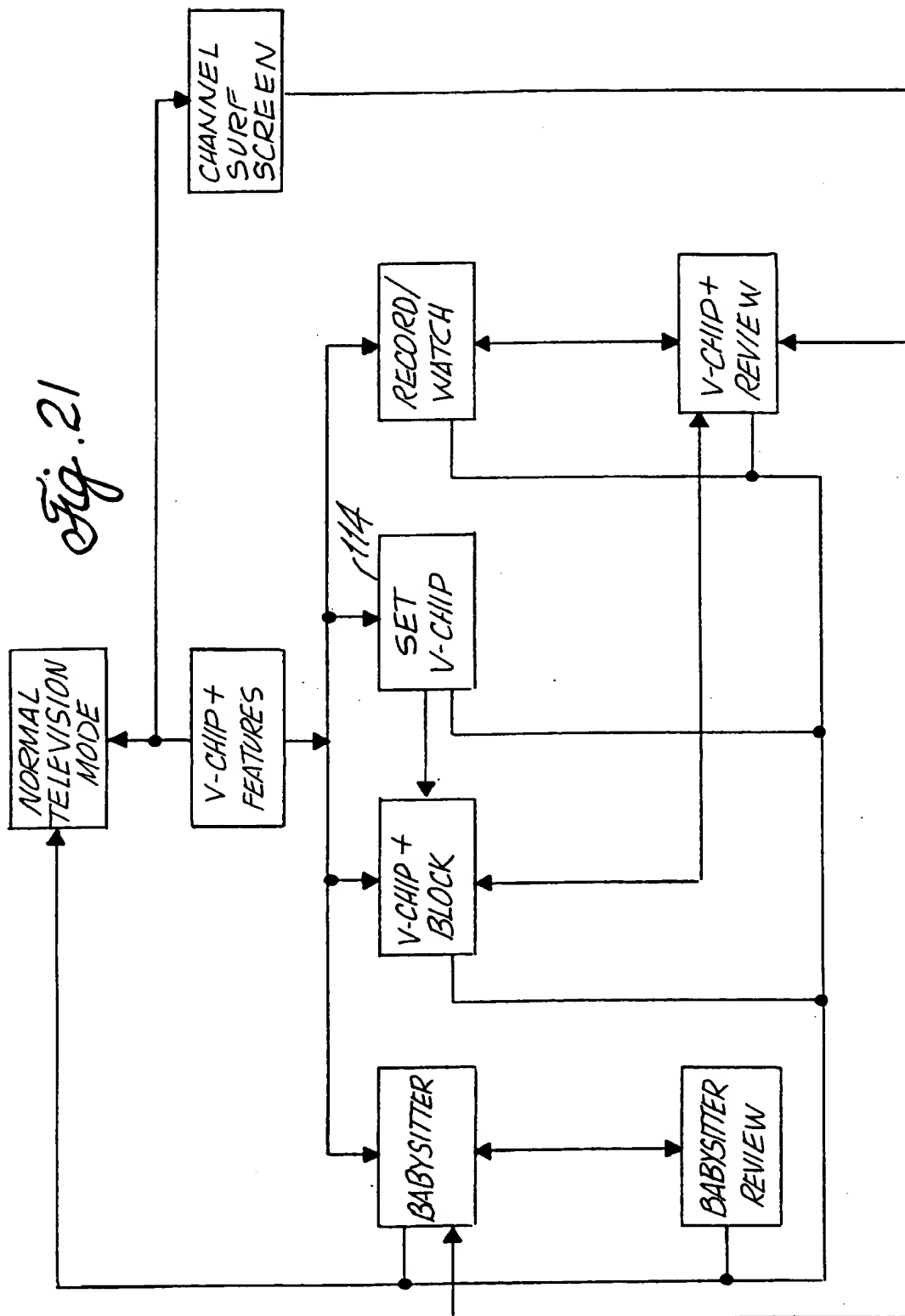
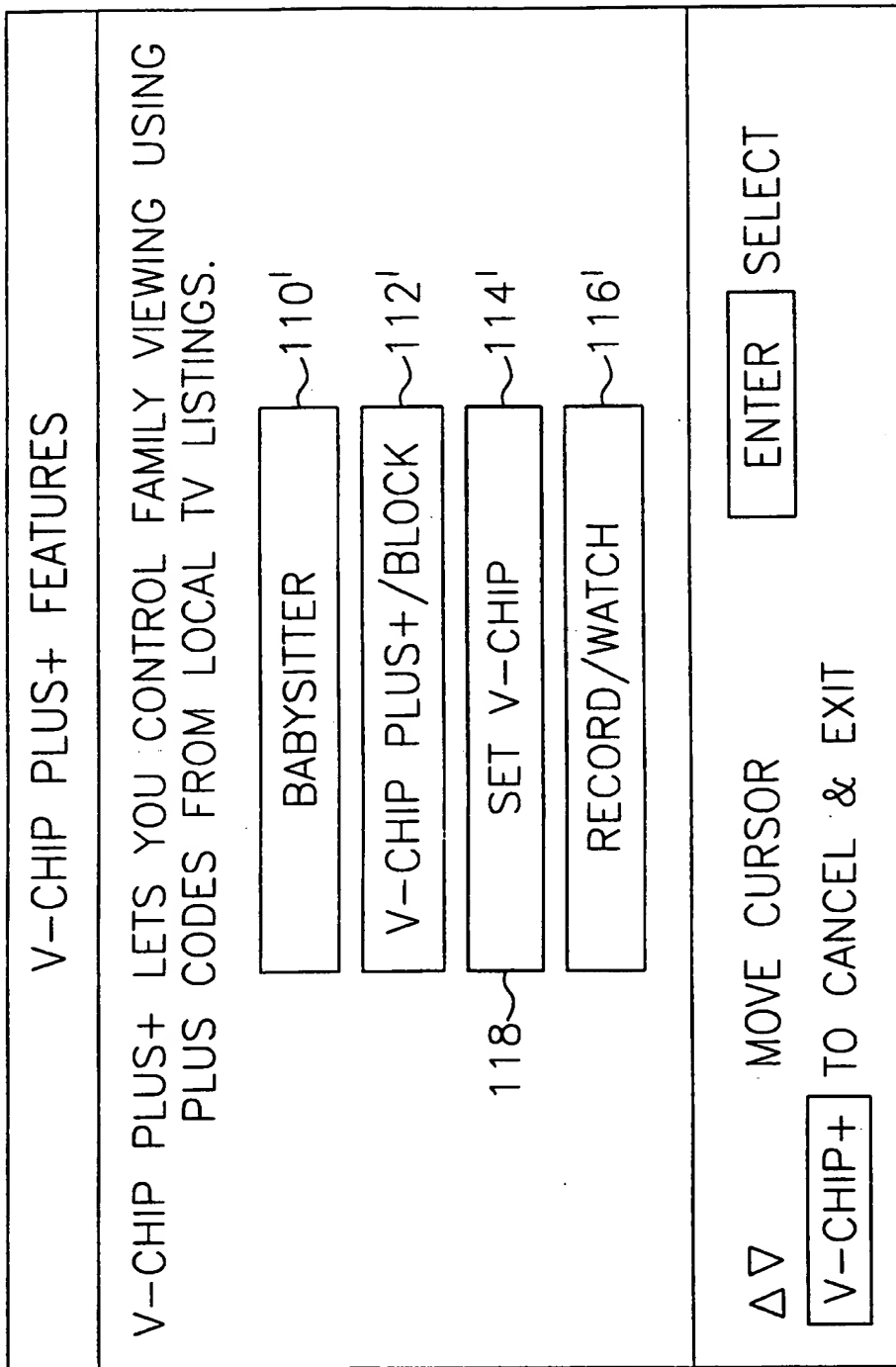


FIG. 22



23/69

SET V-CHIP    ☐ ON    ☒ OFF

TV RATINGS,    MOVIE RATINGS

BLOCKS SHOWS RATED HIGHER THAN:

THE V-CHIP FEATURE IS DISABLED

AND BLOCKS:

☐ VIOLENCE    ☐ LANGUAGE

☐ SEXUAL SITUATIONS    ☐ DIALOGUE

TO PERSONALIZE YOUR TV VIEWING,  
PRESS V-CHIP PLUS+/BLOCK

ΔΔ TO MOVE    ΔΔ CHANGE/SELECT

VCHIP+ TO EXIT

Fig. 23

24/69

<p>SET V-CHIP    <input type="checkbox"/> ON    <input type="checkbox"/> OFF</p>	
<div style="border: 1px solid black; padding: 5px; display: inline-block; margin: 10px;">TV RATINGS</div>	<div style="border: 1px solid black; padding: 5px; display: inline-block; margin: 10px;">MOVIE RATINGS</div>
<p>BLOCKS SHOWS RATED HIGHER THAN:</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin: 10px;">----- TV-PG PARENTAL GUIDANCE</div>	
<p>AND BLOCKS:</p>	
<p><sup>132</sup> <input type="checkbox"/> VIOLENCE</p>	<p><input checked="" type="checkbox"/> LANGUAGE</p>
<p><input checked="" type="checkbox"/> SEXUAL SITUATIONS</p>	<p><input checked="" type="checkbox"/> DIALOGUE</p>
<p>TO PERSONALIZE YOUR TV VIEWING, PRESS <div style="border: 1px solid black; padding: 2px; display: inline-block;">V-CHIP PLUS+/BLOCK</div> <sup>134</sup></p> <p><input type="button" value="VCHIP+"/> TO MOVE      <input type="button" value="VCHIP-"/> TO EXIT</p> <p><input type="button" value="VCHIP+"/> TO MOVE      <input type="button" value="VCHIP-"/> TO EXIT</p>	

*Fig. 24*

25/69

V-CHIP PLUS +	
ENTER THE PLUS CODE FOR EACH PROGRAM YOU WISH TO BLOCK.	
PLUS CODE	<div style="border: 1px solid black; padding: 5px; display: inline-block;">           90623         </div> <div style="margin-left: 10px;"> <sup>136</sup>  <sup>138</sup> </div>
<div style="border: 1px solid black; padding: 2px; display: inline-block;">             &lt; &gt; Δ Δ           </div> MOVE CURSOR <div style="border: 1px solid black; padding: 2px; display: inline-block;">             VCHIP +           </div> TO EXIT <div style="border: 1px solid black; padding: 2px; display: inline-block;">             REVIEW           </div> V-CHIP PLUS+ SELECTION	<div style="border: 1px solid black; padding: 2px; display: inline-block;">             ENTER           </div> SELECT

*Fig. 25*



26/69

V-CHIP PLUS+	
TO BLOCK THE SHOW:	
<div> <div>KWHY 22 7/4 SAT 10:00P-0:00a</div> <div> <div> <div>140</div> <div>ONCE</div> <div>142</div> </div> <div>DAILY</div> <div>WEEKLY</div> </div> </div>	
THIS SHOW WILL BE BLOCKED THANKS FOR USING V-CHIP+	

144

Fig. 26

27/69

<p>REVIEW V-CHIP PLUS+ SELECTIONS</p> <p>146 → <input type="text" value="BLOCK"/> <sup>144</sup> <input type="text" value="RECORD"/> <input type="text" value="WATCH"/></p> <p>BABYSITTER ON(OFF)</p>				
KNBC	4	SUN	05/17	11:00a - 12:15p
KTLA	5	M-F		11:00a - 12:15p
KWHY	22	SAT	WKLY	10:00p - 11:20p
<p>Δ ∇ &lt; &gt; MOVE CURSOR <input type="text" value="ENTER"/> DELETE</p> <p><input type="text" value="VCHIP+"/> TO EXIT</p>				

Fig. 27

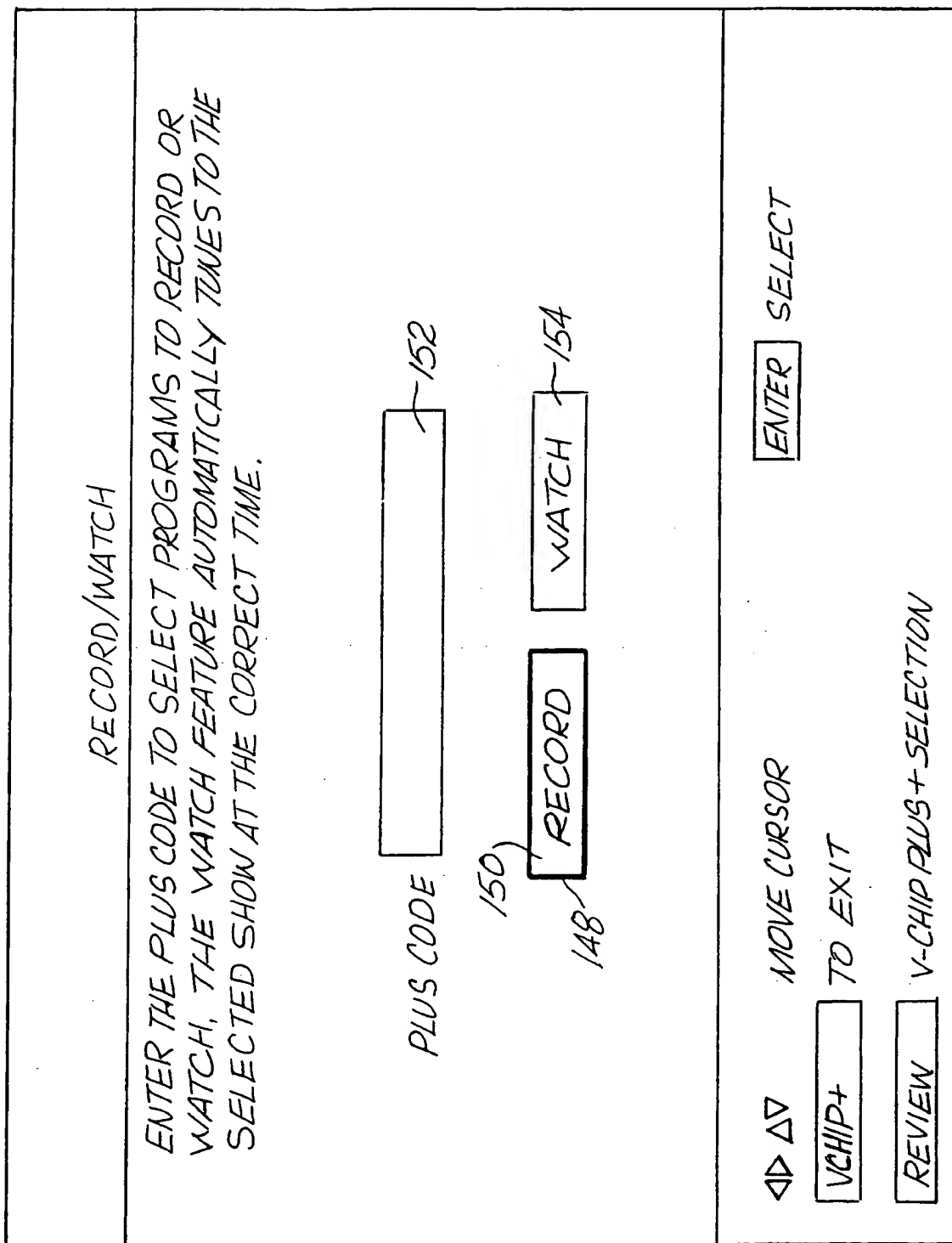


Fig. 28

29/69

<p>RECORD/WATCH</p>	<p style="text-align: center;">TO RECORD THE SHOW:</p> <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: 80%;"> <p>CH 36 6/21 SUN 2:46a-2:52a</p> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="text-align: center;"> <sup>156</sup>  <div style="border: 1px solid black; padding: 5px; display: inline-block;">ONCE</div> <sub>158</sub> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;">DAILY</div> </div> <div style="text-align: center;"> <div style="border: 1px solid black; padding: 5px; display: inline-block;">WEEKLY</div> </div> </div> <p style="text-align: center; margin-top: 20px;">THIS SHOW WILL BE RECORDED</p>
---------------------	---

158

Fig. 29

30/69

RECORD/WATCH	
<p>TO WATCH SHOW:</p> <p>CH. 36 6/21 SUN 2:46a-2:52a</p> <p>ONCE DAILY WEEKLY</p>	
<p>TV WILL TURN ON WHEN THIS SHOW IS ON</p>	

Fig. 30

31/69

<p>REVIEW V-CHIP PLUS+ SELECTIONS</p> <div> <div>BLOCK</div> <div> <div>RECORD</div> <div>WATCH</div> </div> </div> <p>BABYSITTER ON(OFF)</p>			
KABC	7	SAT	05/16 10:00p-11:00p
KTLA	5	SUN	05/17 08:00p-08:30p
<div> <div> <div>ΔΔΔΔ</div> <div>VCHIP+</div> </div> <div> <div>MOVE CURSOR</div> <div>TO EXIT</div> </div> <div> <div>ENTER</div> <div>DELETE</div> </div> </div>			

Fig. 31

<p>REVIEW V-CHIP PLUS+ SELECTIONS</p> <p> <input type="button" value="BLOCK"/> <input type="button" value="RECORD"/> <input type="button" value="WATCH"/> </p> <p>BABYSITTER ON(OFF)</p>			
KCBS	2	SAT	05/16
			09:00a-10:00a
KNBC	4	M-F.	12:00p-01:00p
<p> <input type="button" value="VCHIP+"/> <input type="button" value="MOVE CURSOR"/> <input type="button" value="ENTER"/> <input type="button" value="DELETE"/> </p> <p>TO EXIT</p>			

Fig. 32

BABYSITTER ☐ ON ☐ OFF

160 164 162

BABYSITTER SETS YOUR TV TO RECEIVE ONLY THOSE PROGRAMS YOU SELECT. TO IDENTIFY THESE PROGRAMS, ENTER THEIR PLUS CODES BELOW:

PLUS CODE 23452

166

ONCE WEEKLY DAILY

ΔΔ ΔΔ TO MOVE ENTER TO SELECT

VCHIP+ TO EXIT

REVIEW BABYSITTER SELECTIONS

Fig. 33



*BABYSITTER PROGRAM REVIEW*

☐ ON    ☐ OFF

*WHEN ON, YOU WILL ONLY BE ABLE TO WATCH THE PROGRAMS LISTED BELOW:*

KCBS	2	MON	05/18	10:00p - 12:30a	
KABC	7	MON	WEEKLY	02:00p - 03:30p	
CH	24	THU	05/21	10:30a - 10:00p	

ΔΔ    TO MOVE

   TO CANCEL & EXIT

   BACK TO ENTRY SCREEN

DELETE

*Fig. 34*

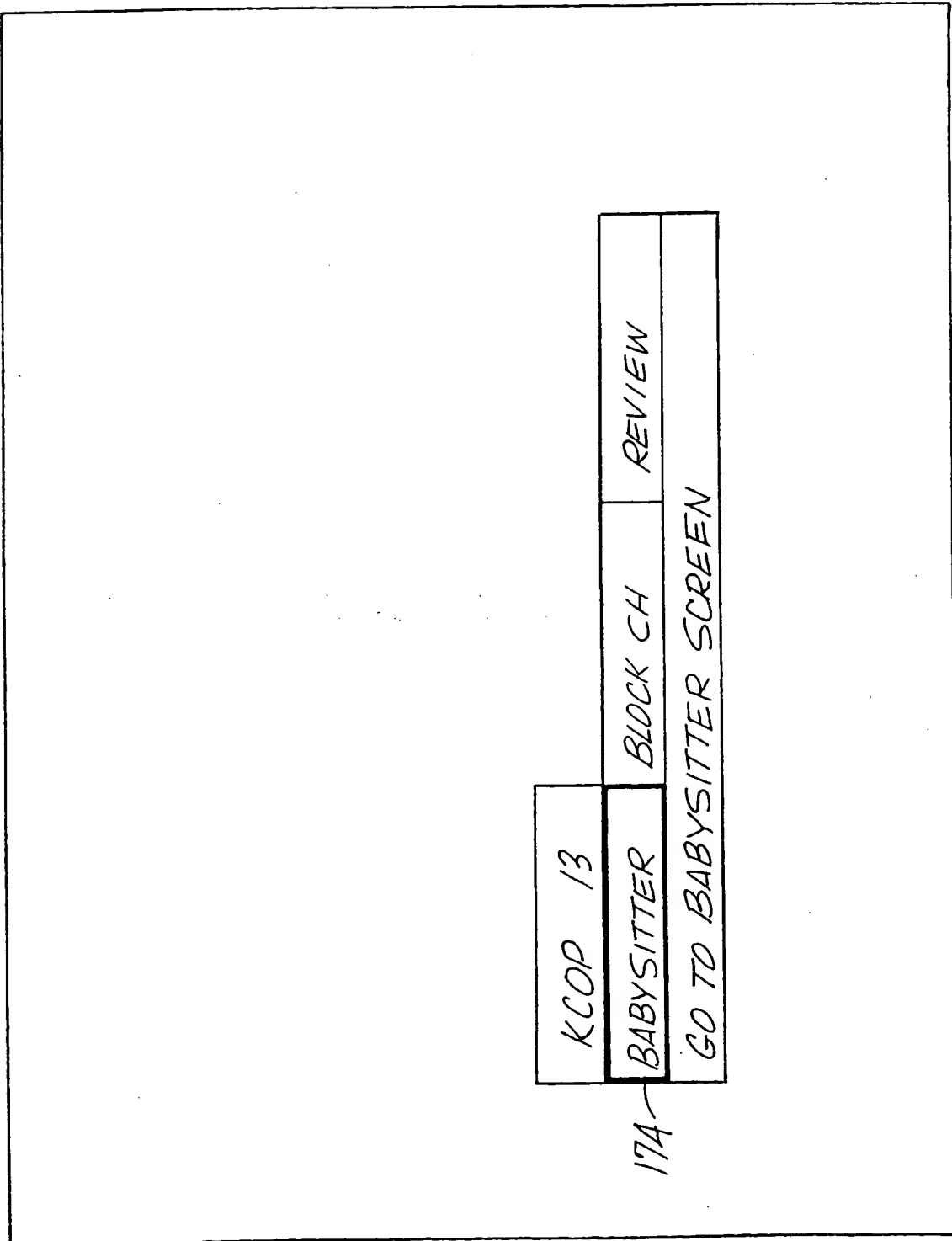


Fig. 35

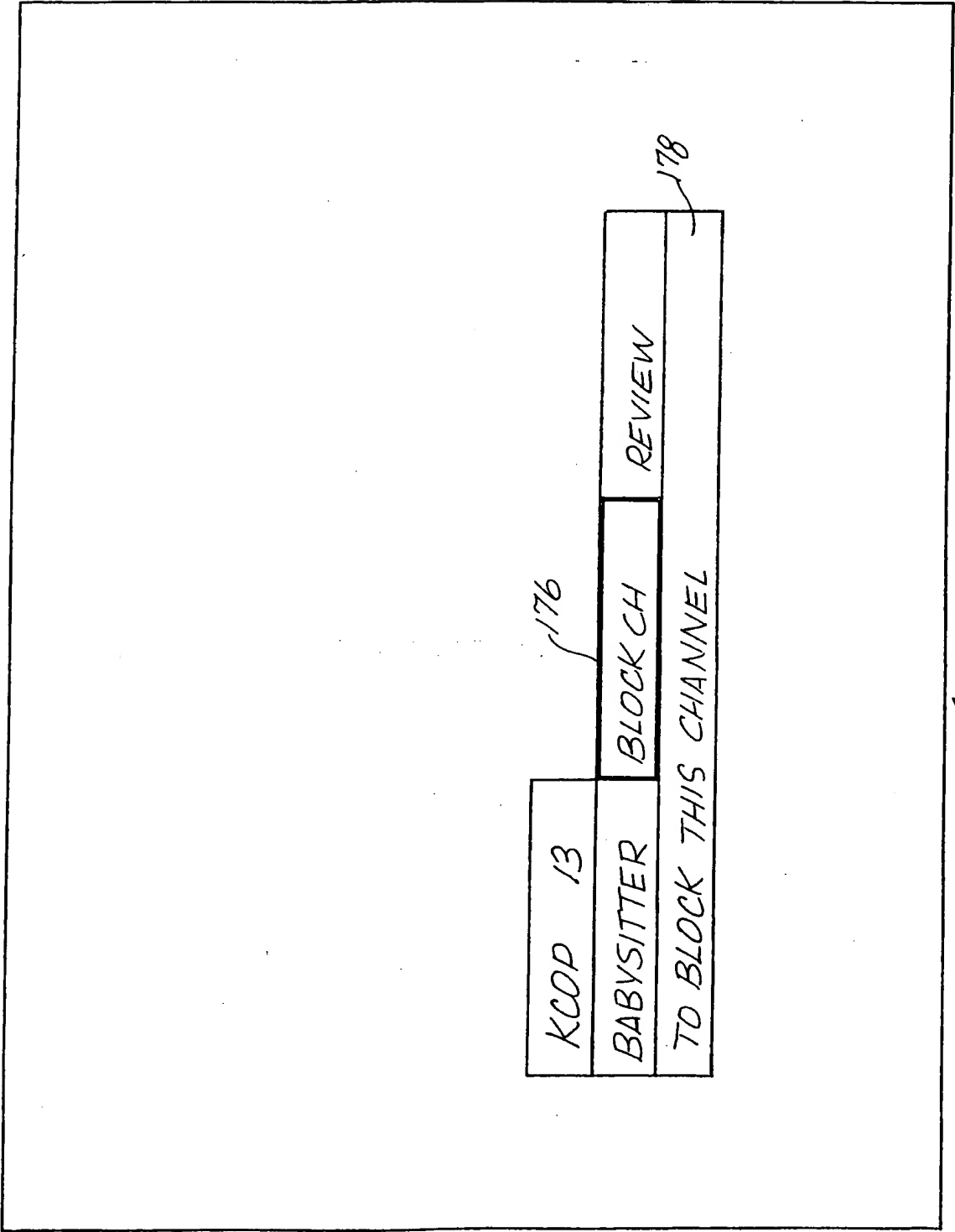
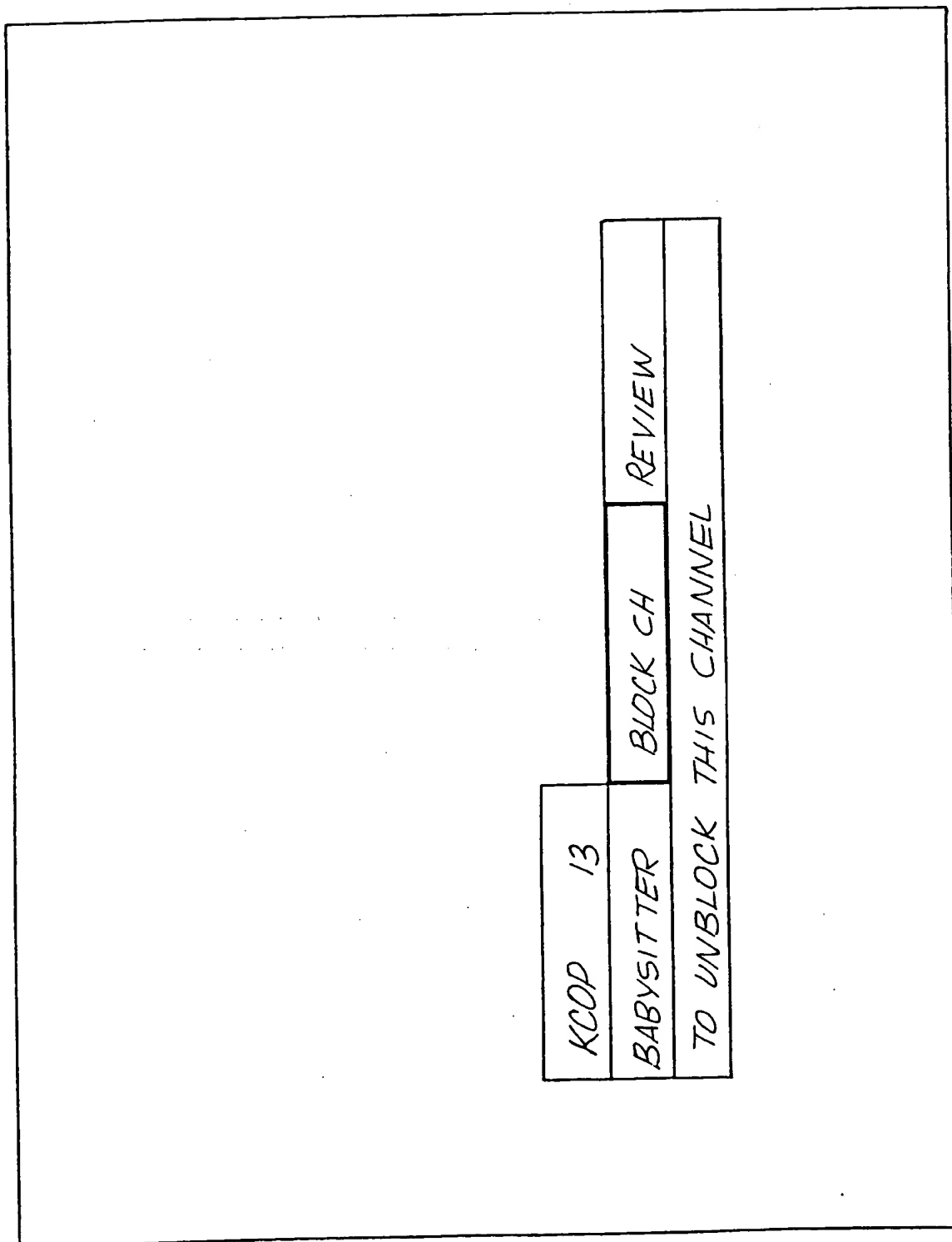


Fig. 36



*Fig. 37*

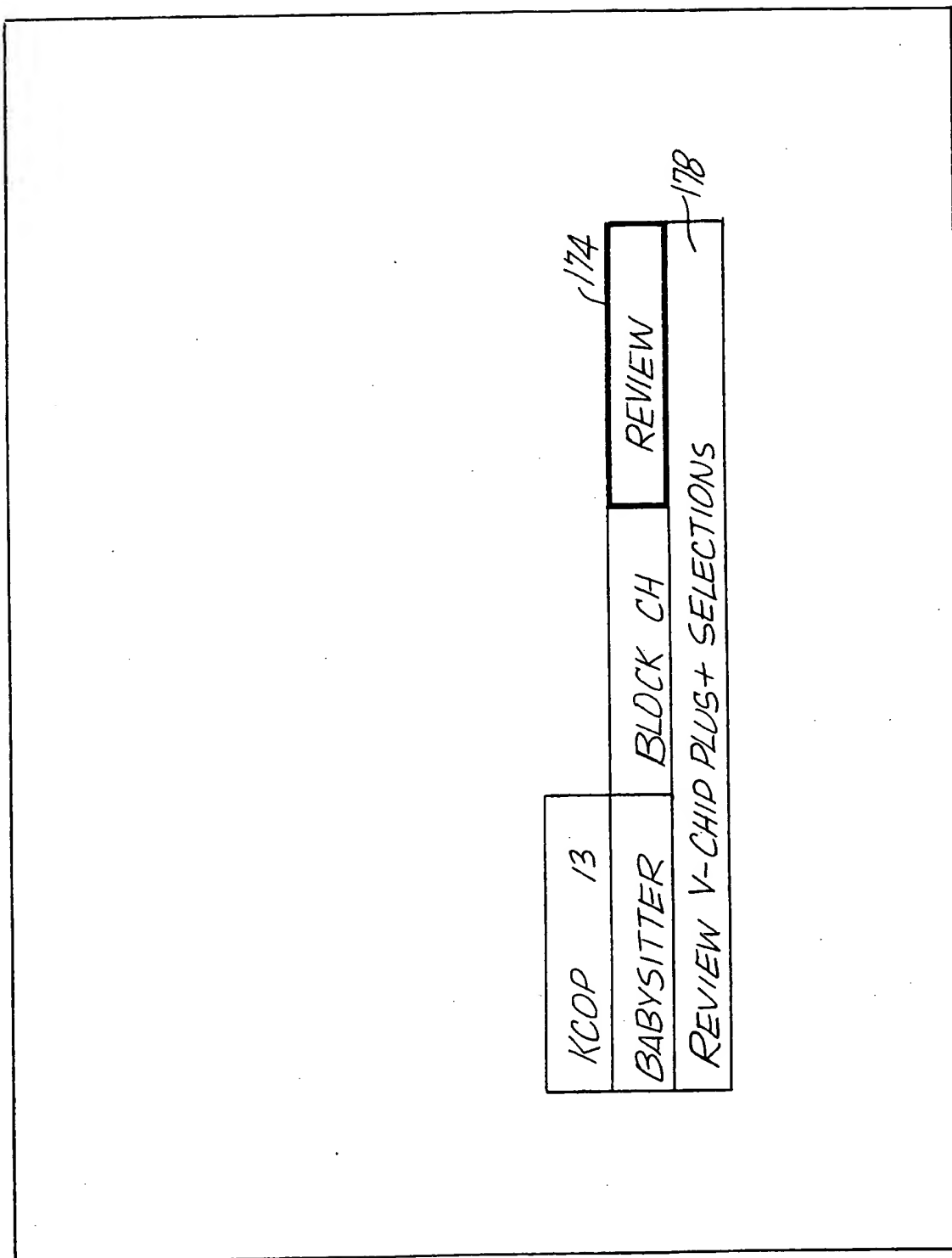
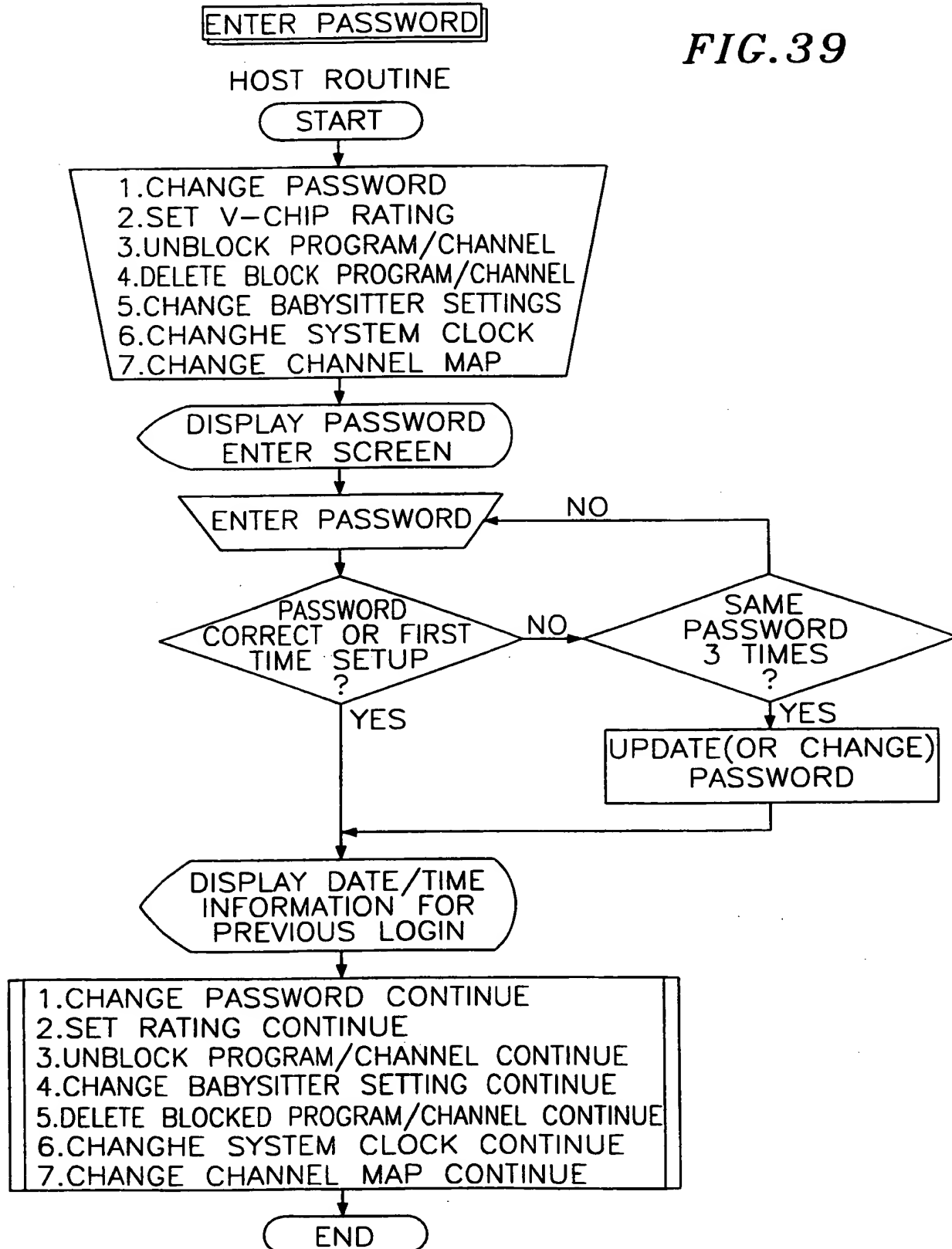


Fig. 38









39/69

FIG. 39



40/69

FIG. 40

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>OWATCH      ORECORD      GUIDEPLUS+</p> <p>WALKER, TEXAS RANGER: STEROIDS KILL HIGH-SCHOOL ATHLETES.</p> <p>CBS[4]      10:00PM(1HR)      CC  </p> <p>     </p>																																	
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD </p>	<table border="1"> <thead> <tr> <th>SAT</th> <th>10:00PM</th> <th>10:30PM</th> </tr> </thead> <tbody> <tr> <td>LAST CHANNEL</td> <td colspan="2">WALKER, TEXAS RANGER</td> </tr> <tr> <td>ABC</td> <td>PRIMETIME LIVE</td> <td></td> </tr> <tr> <td>FOX</td> <td>A COLUMBO</td> <td>THE SIMPSONS</td> </tr> <tr> <td>CBS</td> <td>WALKER, TEXAS RANGER</td> <td></td> </tr> <tr> <td>UPN</td> <td>A WALKING TALL NEWS</td> <td></td> </tr> <tr> <td>PBS</td> <td>A ON GOLDEN P...</td> <td>JUST UP ROAD. A</td> </tr> <tr> <td>CBC</td> <td>A MOLSON HOCK...</td> <td>COMICS!</td> </tr> <tr> <td>AMC</td> <td>A YOUNG PHILADELPHIANS</td> <td>A</td> </tr> <tr> <td>ESPN</td> <td>A COLLEGE FOOTBALL</td> <td>A</td> </tr> </tbody> </table>				SAT	10:00PM	10:30PM	LAST CHANNEL	WALKER, TEXAS RANGER		ABC	PRIMETIME LIVE		FOX	A COLUMBO	THE SIMPSONS	CBS	WALKER, TEXAS RANGER		UPN	A WALKING TALL NEWS		PBS	A ON GOLDEN P...	JUST UP ROAD. A	CBC	A MOLSON HOCK...	COMICS!	AMC	A YOUNG PHILADELPHIANS	A	ESPN	A COLLEGE FOOTBALL	A
SAT	10:00PM	10:30PM																																
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ESPN	A COLLEGE FOOTBALL	A																																
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD </p>																																		

41/69

FIG. 41












<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O O O GUIDEPLUS+</p> <p>GRID DISPLAYS SHOW LISTINGS BY CHANNEL AND TIME SCROLL DOWN TO USE, RIGHT TO VIEW SORT.</p> <p>CBS[4] 10:00PM(1HR) CC  </p> <p>GRID SORT VCHIP+ SCHEDULE </p>																		
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD </p>	<p>SAT 10:00PM 10:30PM</p> <table border="1"> <tr><td>LAST CHANNEL</td><td>WALKER, TEXAS RANGER</td></tr> <tr><td>ABC</td><td>PRIMETIME LIVE</td></tr> <tr><td>FOX</td><td>ACOLUMBO THE SIMPSON'S</td></tr> <tr><td>CBS</td><td>WALKER, TEXAS RANGER</td></tr> <tr><td>UPN</td><td>WALKING TALL NEWS</td></tr> <tr><td>PBS</td><td>ON GOLDEN P... JUST UP ROAD...</td></tr> <tr><td>CBC</td><td>MOLSON HOCK... COMICS!</td></tr> <tr><td>AMC</td><td>YOUNG PHILADELPHIANS </td></tr> <tr><td>ESPN</td><td>COLLEGE FOOTBALL </td></tr> </table>	LAST CHANNEL	WALKER, TEXAS RANGER	ABC	PRIMETIME LIVE	FOX	ACOLUMBO THE SIMPSON'S	CBS	WALKER, TEXAS RANGER	UPN	WALKING TALL NEWS	PBS	ON GOLDEN P... JUST UP ROAD...	CBC	MOLSON HOCK... COMICS!	AMC	YOUNG PHILADELPHIANS 	ESPN	COLLEGE FOOTBALL 
LAST CHANNEL	WALKER, TEXAS RANGER																		
ABC	PRIMETIME LIVE																		
FOX	ACOLUMBO THE SIMPSON'S																		
CBS	WALKER, TEXAS RANGER																		
UPN	WALKING TALL NEWS																		
PBS	ON GOLDEN P... JUST UP ROAD...																		
CBC	MOLSON HOCK... COMICS!																		
AMC	YOUNG PHILADELPHIANS 																		
ESPN	COLLEGE FOOTBALL 																		
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD </p>																			



FIG. 42

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>OWATCH      ORECORD      GUIDEPLUS+</p> <p>SORT DISPLAYS SHOW LISTINGS BY PROGRAM CATEGORY AND TIME. SCROLL DOWN TO USE, RIGHT TO VIEW VCHIP+, LEFT TO VIEW GRID.</p> <div><div>GRID</div><div>SORT</div><div>VCHIP+</div><div>SCHEDULE</div></div> <p>MOVIES      SPORTS      CHILDREN</p>
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>	
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>	<div>ALL BASEBALL BASKETBALL BOXING EQUESTRIAN FOOTBALL GOLF HOCKEY RACING</div>

FIG. 43

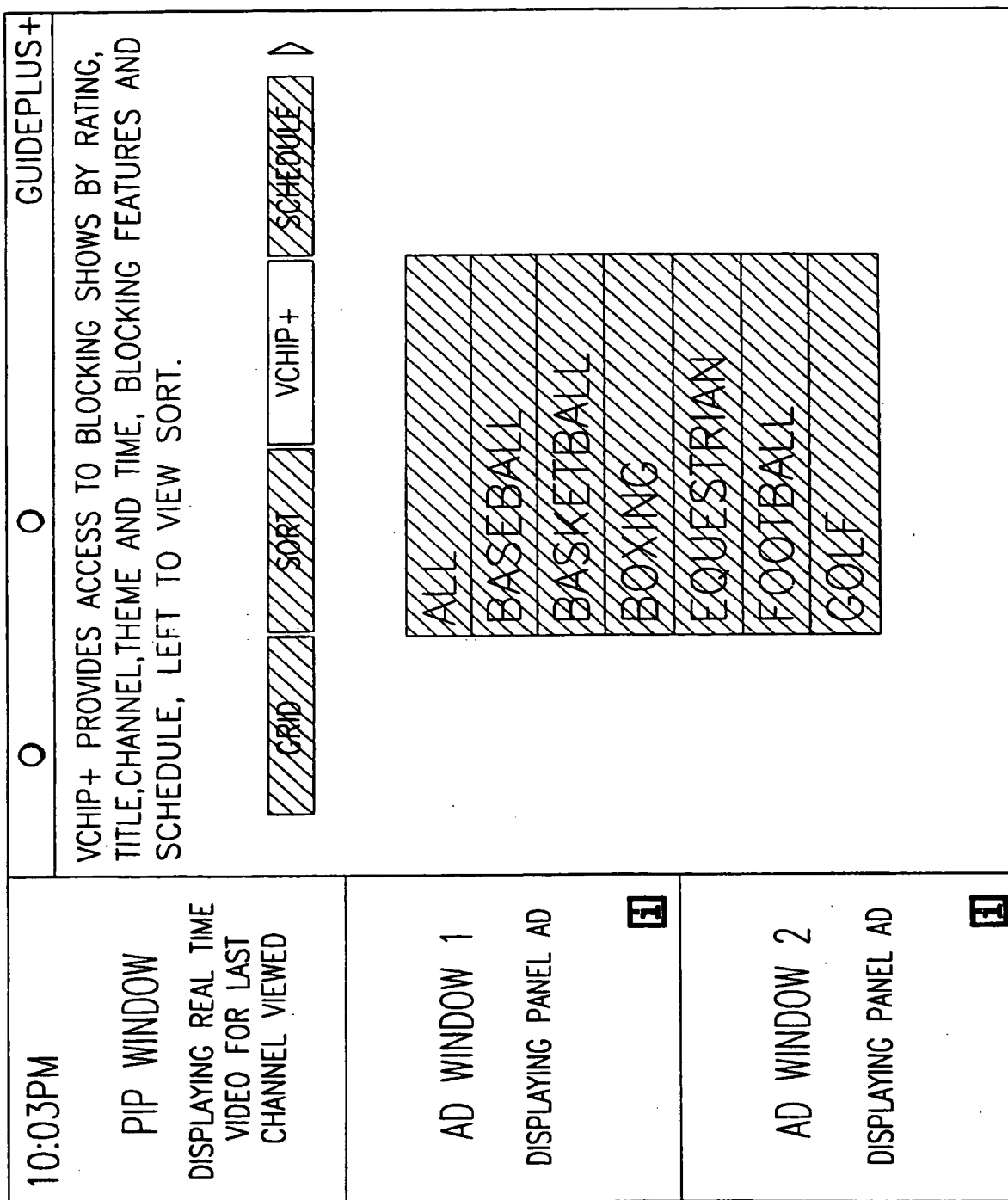


FIG. 44

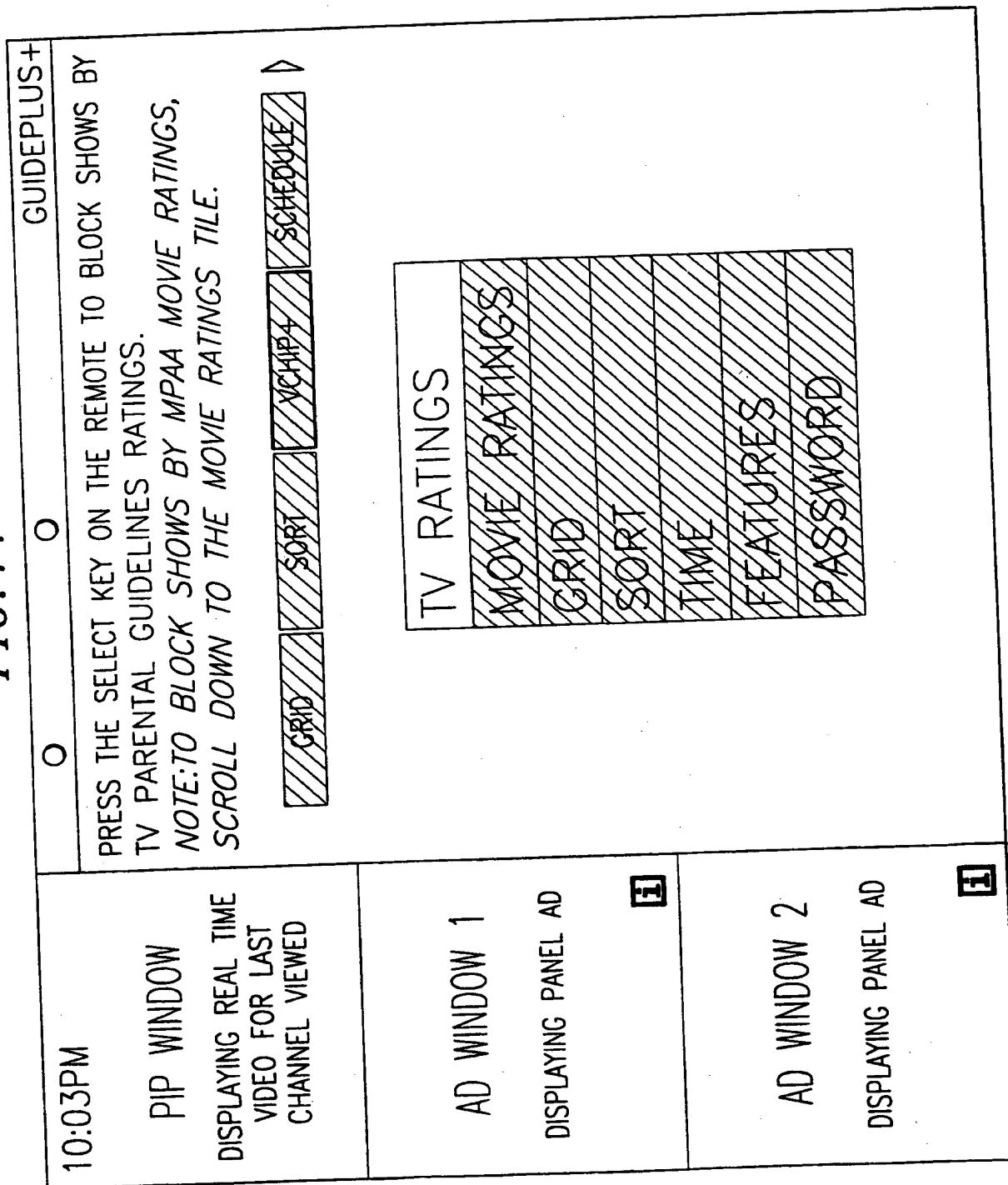


FIG. 45

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O OBLOCK GUIDEPLUS+</p> <p> ALL CHILDREN. PROGRAMS WITH THIS RATING ARE DESIGNED TO BE APPROPRIATE FOR ALL CHILDREN</p> <p>PRESS THE GREEN KEY TO BLOCK THIS AND HIGHER RATINGS.</p> <p> </p>																													
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD</p> <p></p>	<p>TV PARENTAL GUIDELINES RATINGS</p> <p>PROGRAMS DESIGNED SOLELY FOR CHILDREN:</p> <table border="1"> <tr> <td>TV</td> <td></td> </tr> <tr> <td>TV</td> <td>TV FV</td> </tr> </table> <p>PROGRAMS DESIGNED FOR THE ENTIRE AUDIENCE:</p> <table border="1"> <tr> <td>TV</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>TV</td> <td>TV V</td> <td>TV S</td> <td>TV L</td> <td>TV D</td> </tr> <tr> <td>TV</td> <td>TV V</td> <td>TV S</td> <td>TV L</td> <td>TV D</td> </tr> <tr> <td>TV</td> <td>TV V</td> <td>TV S</td> <td>TV L</td> <td>TV D</td> </tr> <tr> <td>TV</td> <td>TV V</td> <td>TV S</td> <td>TV L</td> <td>TV D</td> </tr> </table>	TV		TV	TV FV	TV					TV	TV V	TV S	TV L	TV D	TV	TV V	TV S	TV L	TV D	TV	TV V	TV S	TV L	TV D	TV	TV V	TV S	TV L	TV D
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TV																														
TV	TV V	TV S	TV L	TV D																										
TV	TV V	TV S	TV L	TV D																										
TV	TV V	TV S	TV L	TV D																										
TV	TV V	TV S	TV L	TV D																										
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD</p> <p></p>	<p>PROGRAMS THAT HAVE NOT BEEN RATED:</p> <table border="1"> <tr> <td>UNRATED</td> </tr> </table>	UNRATED																												
UNRATED																														

FIG. 46

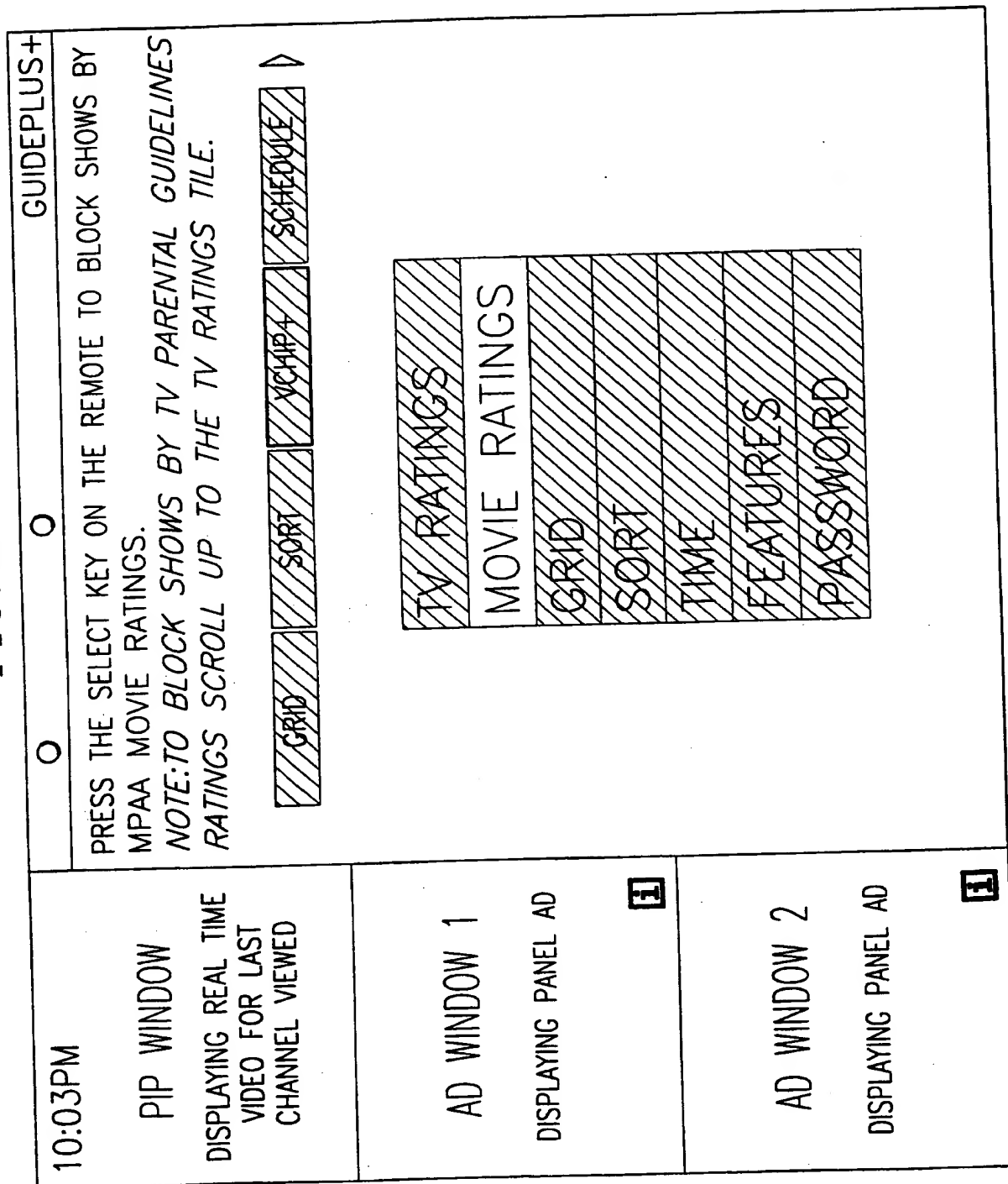


FIG. 47

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O      OBLOCK      GUIDEPLUS+</p> <p><b>G</b> GENERAL AUDIENCES. ALL AGES ADMITTED.</p> <p>PRESS THE GREEN KEY TO BLOCK THIS AND HIGHER RATINGS.</p> <p>GRID   SORT   VCHIP+   SCHEDULE</p>
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>	<p>MPAA MOVIE RATINGS</p> <p>MOVIES UNEDITED FOR TELEVISION</p> <p>G</p>
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>	

48/69

FIG. 48

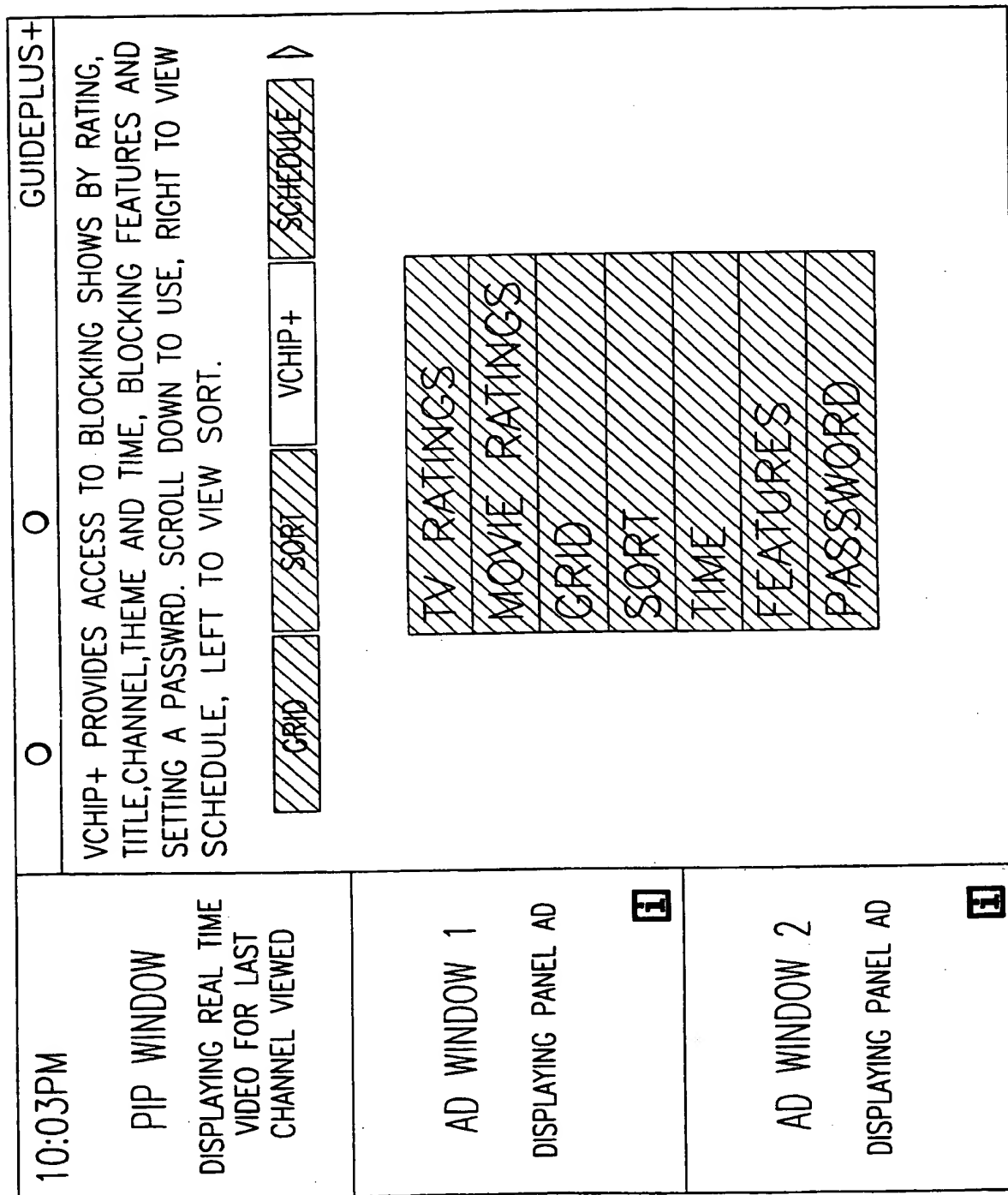


FIG. 49

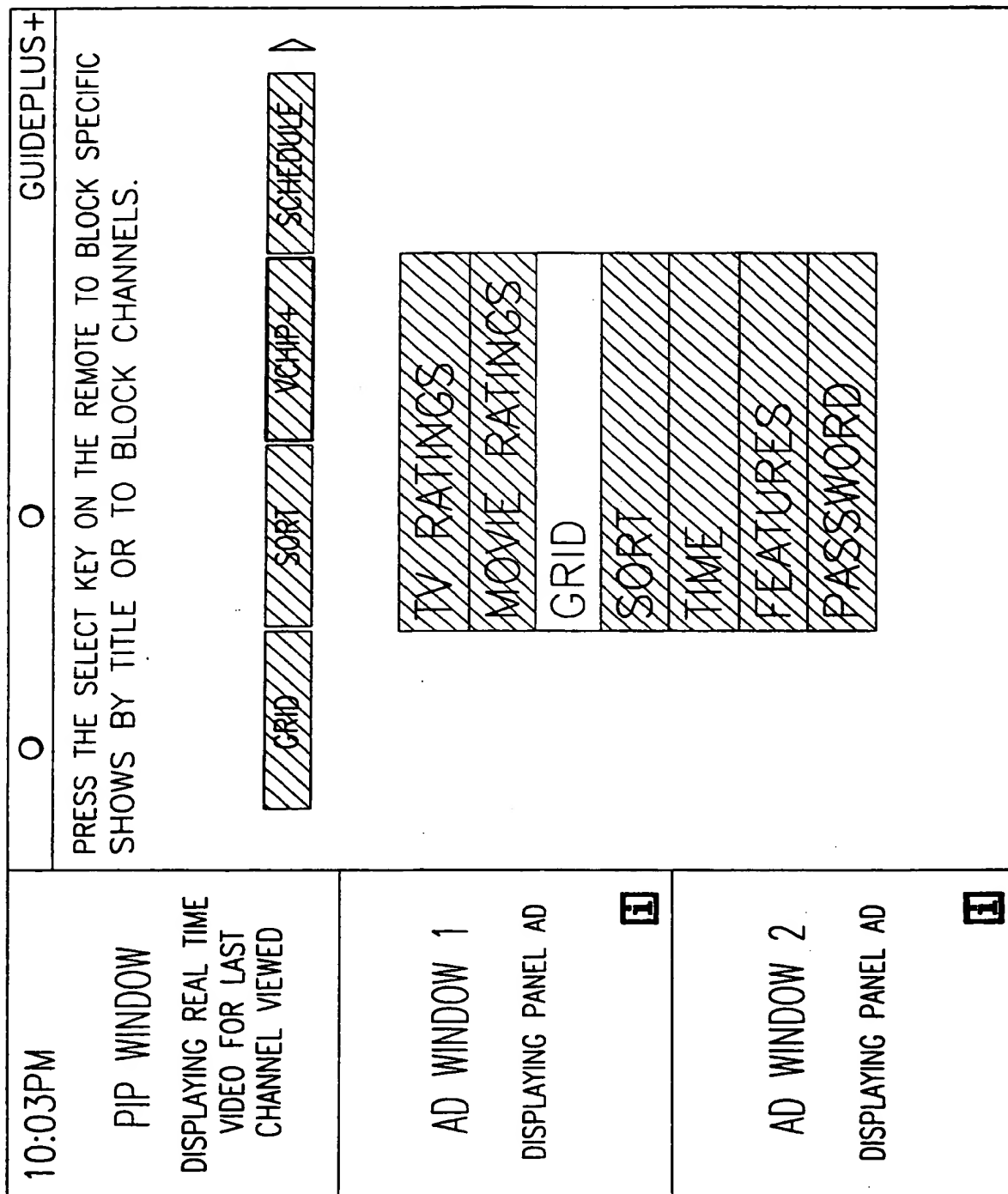




FIG. 50

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O OBLOCK GUIDEPLUS+</p> <p>COLUMBO: A RETIRED ADMIRAL FINDS HIMSELF IN A BIT OF HOT WATER. TV14</p> <p>WFXT[25] 9:30PM(1HR) CCN <b>I</b></p> <p>GRID SORT VCHIP4 SCHEDULE</p>																											
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD <b>I</b></p>	<p>SAT 10:00PM 10:30PM</p> <table border="1"> <tr> <td>LAST CHANNEL</td> <td>WALKER, TEXAS RANGER</td> <td>TV PG</td> </tr> <tr> <td>ABC</td> <td>PRIMETIME LIVE</td> <td></td> </tr> <tr> <td>FOX</td> <td>1 COLUMBO 14 THE SIMP...</td> <td>TV PG</td> </tr> <tr> <td>CBS</td> <td>WALKER, TEXAS RANGER</td> <td>TV PG</td> </tr> <tr> <td>UPN</td> <td>1 WALKING T... PG NEWS</td> <td></td> </tr> <tr> <td>PBS</td> <td>1 ON GOLDE... G JUST UP RO...</td> <td>TV G</td> </tr> <tr> <td>CBC</td> <td>1 MOLSON HOCK... COMICS!</td> <td>TV 14</td> </tr> <tr> <td>AMC</td> <td>1 YOUNG PHILADELPHIANS PG-13</td> <td></td> </tr> <tr> <td>ESPN</td> <td>1 COLLEGE FOOTBALL</td> <td></td> </tr> </table>	LAST CHANNEL	WALKER, TEXAS RANGER	TV PG	ABC	PRIMETIME LIVE		FOX	1 COLUMBO 14 THE SIMP...	TV PG	CBS	WALKER, TEXAS RANGER	TV PG	UPN	1 WALKING T... PG NEWS		PBS	1 ON GOLDE... G JUST UP RO...	TV G	CBC	1 MOLSON HOCK... COMICS!	TV 14	AMC	1 YOUNG PHILADELPHIANS PG-13		ESPN	1 COLLEGE FOOTBALL	
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<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD <b>I</b></p>																												

51/69

FIG. 51

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O O BLOCK GUIDEPLUS+</p> <p>FOX WFXT[25]</p> <p>PRESS THE GREEN KEY TO BLOCK THIS CHANNEL.</p> <p>GRID SORT VCHIP4 SCHEDULE</p>																											
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>	<p>SAT 10:00PM 10:30PM</p> <table border="1"> <tr> <td>LAST CHANNEL</td> <td>WALKER, TEXAS RANGER</td> <td>TV PG</td> </tr> <tr> <td>ABC</td> <td>PRIMETIME LIVE</td> <td></td> </tr> <tr> <td>FOX</td> <td>COLUMBO</td> <td>TV 14 THE SIMP...</td> </tr> <tr> <td>CBS</td> <td>WALKER, TEXAS RANGER</td> <td>TV PG</td> </tr> <tr> <td>UPN</td> <td>WALKING T...</td> <td>PG NEWS</td> </tr> <tr> <td>PBS</td> <td>ON GOLDE...</td> <td>G JUST UP RO... TV G</td> </tr> <tr> <td>CBC</td> <td>MOLSON HOCK...</td> <td>COMICS! TV 14</td> </tr> <tr> <td>AMC</td> <td>YOUNG PHILADELPHIANS</td> <td>PG-13</td> </tr> <tr> <td>ESPN</td> <td>COLLEGE FOOTBALL</td> <td></td> </tr> </table>	LAST CHANNEL	WALKER, TEXAS RANGER	TV PG	ABC	PRIMETIME LIVE		FOX	COLUMBO	TV 14 THE SIMP...	CBS	WALKER, TEXAS RANGER	TV PG	UPN	WALKING T...	PG NEWS	PBS	ON GOLDE...	G JUST UP RO... TV G	CBC	MOLSON HOCK...	COMICS! TV 14	AMC	YOUNG PHILADELPHIANS	PG-13	ESPN	COLLEGE FOOTBALL	
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<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>																												

52/69

FIG.52

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O UNBLOCK O GUIDEPLUS+</p>																															
	<p>FOX WFXT[25]</p> <p>PRESS THE BLUE KEY TO UNBLOCK THIS CHANNEL.</p> <p> <input type="checkbox"/> GRID             <input type="checkbox"/> SORT             <input type="checkbox"/> VCHIP4             <input type="checkbox"/> SCHEDULE             <input type="checkbox"/> </p>																															
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD</p> <p><b>1</b></p>	SAT	<table border="1"> <thead> <tr> <th></th> <th>10:00PM</th> <th>10:30PM</th> </tr> </thead> <tbody> <tr> <td>LAST CHANNEL</td> <td>WALKER, TEXAS RANGER</td> <td>TV PG</td> </tr> <tr> <td>ABC</td> <td>PRIMETIME LIVE</td> <td></td> </tr> <tr> <td>FOX</td> <td>4 COLUMBO TV 14 THE SIMP...</td> <td>TV PG</td> </tr> <tr> <td>CBS</td> <td>WALKER, TEXAS RANGER</td> <td>TV PG</td> </tr> <tr> <td>UPN</td> <td>1 WALKING T... PG NEWS</td> <td></td> </tr> <tr> <td>PBS</td> <td>1 ON GOLDE... G JUST UP RO...</td> <td>TV G</td> </tr> <tr> <td>CBC</td> <td>1 MOLSON HOCK... COMICS!</td> <td>TV 14</td> </tr> <tr> <td>AMC</td> <td>1 YOUNG PHILADELPHANS PG-13</td> <td></td> </tr> <tr> <td>ESPN</td> <td>1 COLLEGE FOOTBALL</td> <td></td> </tr> </tbody> </table>		10:00PM	10:30PM	LAST CHANNEL	WALKER, TEXAS RANGER	TV PG	ABC	PRIMETIME LIVE		FOX	4 COLUMBO TV 14 THE SIMP...	TV PG	CBS	WALKER, TEXAS RANGER	TV PG	UPN	1 WALKING T... PG NEWS		PBS	1 ON GOLDE... G JUST UP RO...	TV G	CBC	1 MOLSON HOCK... COMICS!	TV 14	AMC	1 YOUNG PHILADELPHANS PG-13		ESPN	1 COLLEGE FOOTBALL	
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ESPN	1 COLLEGE FOOTBALL																															
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD</p> <p><b>1</b></p>																																

53/69

FIG. 53

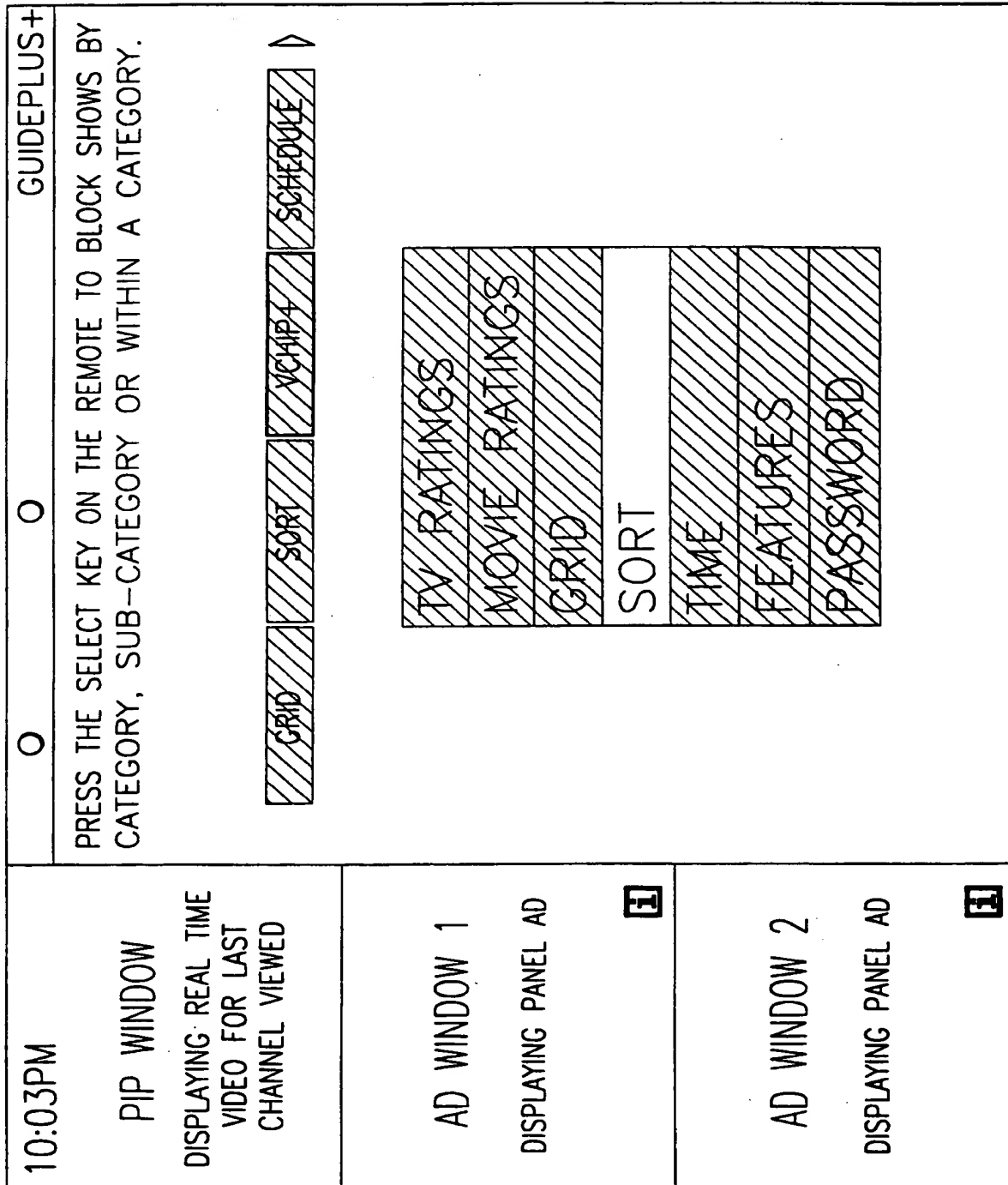


FIG. 54

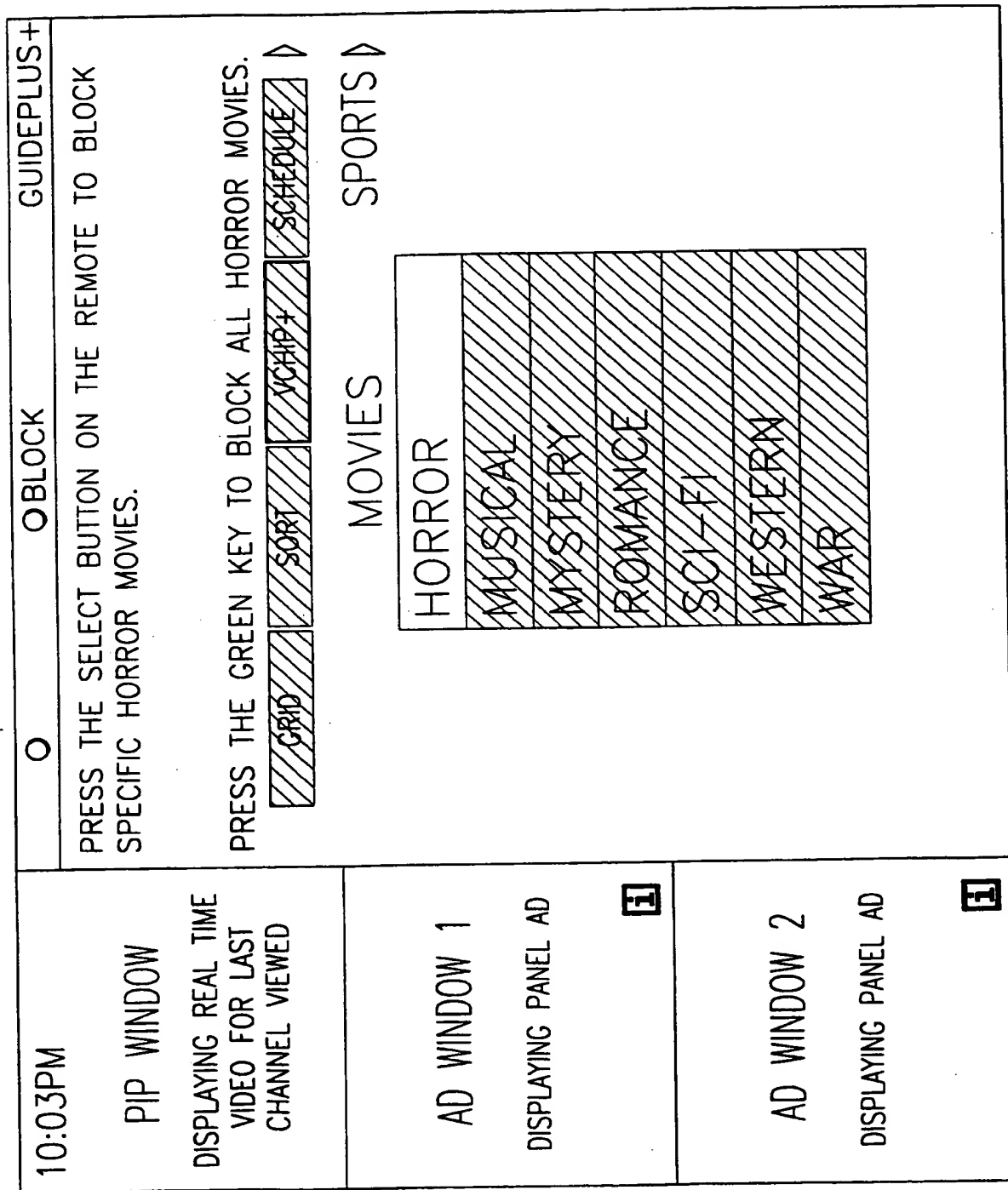


FIG.55

<p>10:03PM</p> <p>PIP WINDOW</p> <p>DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED</p>	<p>O      OBLOCK      GUIDEPLUS+</p> <p>THE SEVENTH SIGN: HORROR 1988    DEMI MORRE, MICHAEL BIEHN,R</p> <p>SHOW[29]      8:00PM(2HR)      <b>I</b></p> <p>GRID    SORT    VCHIP4    SCHEDULE</p> <p>MOVIES: HORROR    SAT, SEPTEMBER 13</p>												
<p>AD WINDOW 1</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>	<table border="1"> <tr> <td>SHOWTIME</td> <td>THE SEVENTH SIGN</td> <td><input checked="" type="checkbox"/> 8:00PM</td> </tr> <tr> <td>TNT</td> <td>FRIDAY THE 13TH</td> <td><input type="checkbox"/> PG 8:00PM</td> </tr> <tr> <td>SHOWTIME</td> <td>THE SEVENTH SIGN</td> <td><input type="checkbox"/> R 10:00PM</td> </tr> <tr> <td>TNT</td> <td>THE STAND</td> <td><input type="checkbox"/> PG 11:00PM</td> </tr> </table>	SHOWTIME	THE SEVENTH SIGN	<input checked="" type="checkbox"/> 8:00PM	TNT	FRIDAY THE 13TH	<input type="checkbox"/> PG 8:00PM	SHOWTIME	THE SEVENTH SIGN	<input type="checkbox"/> R 10:00PM	TNT	THE STAND	<input type="checkbox"/> PG 11:00PM
SHOWTIME	THE SEVENTH SIGN	<input checked="" type="checkbox"/> 8:00PM											
TNT	FRIDAY THE 13TH	<input type="checkbox"/> PG 8:00PM											
SHOWTIME	THE SEVENTH SIGN	<input type="checkbox"/> R 10:00PM											
TNT	THE STAND	<input type="checkbox"/> PG 11:00PM											
<p>AD WINDOW 2</p> <p>DISPLAYING PANEL AD</p> <p><b>I</b></p>													

56/69

FIG. 56

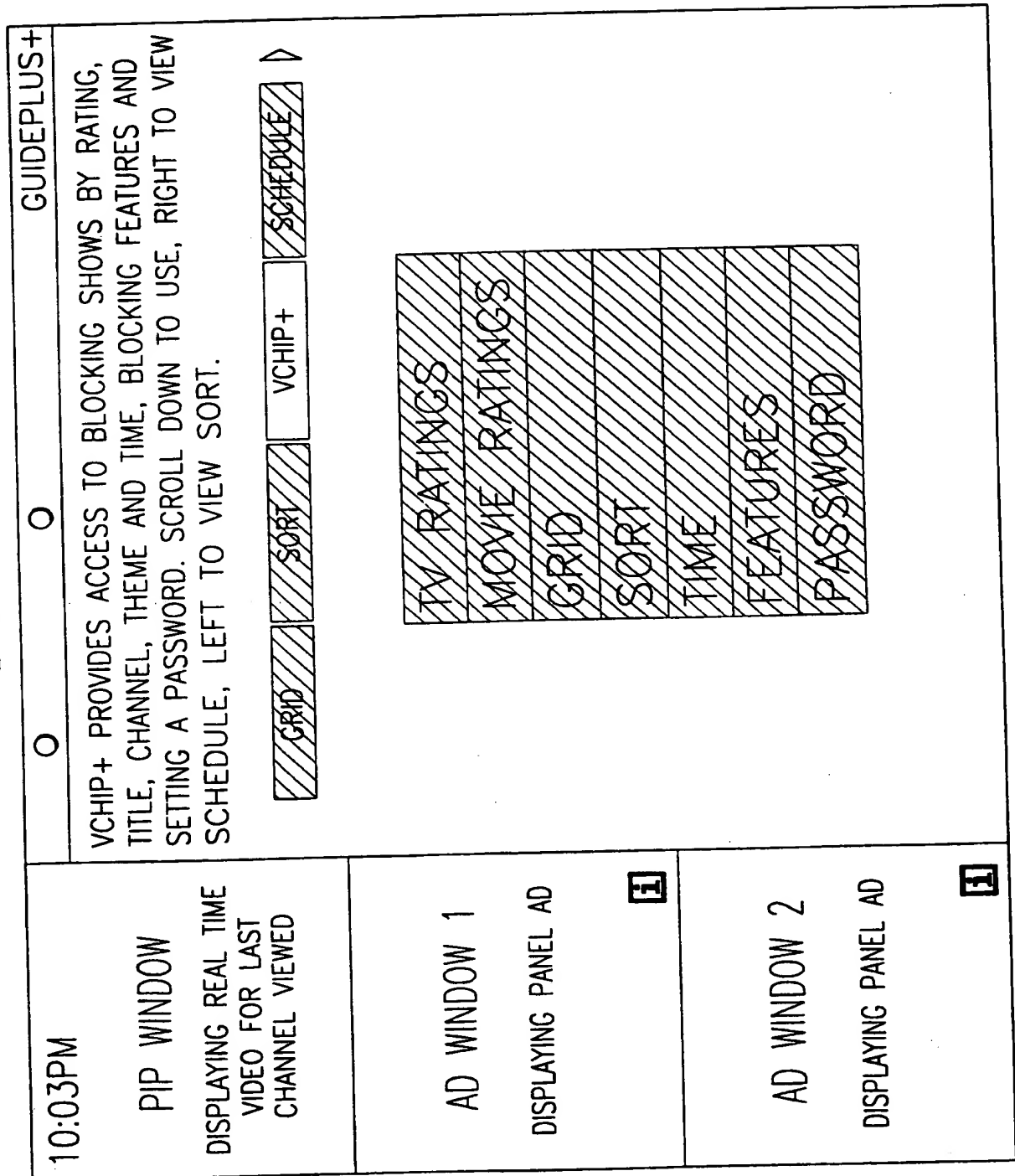


FIG. 57

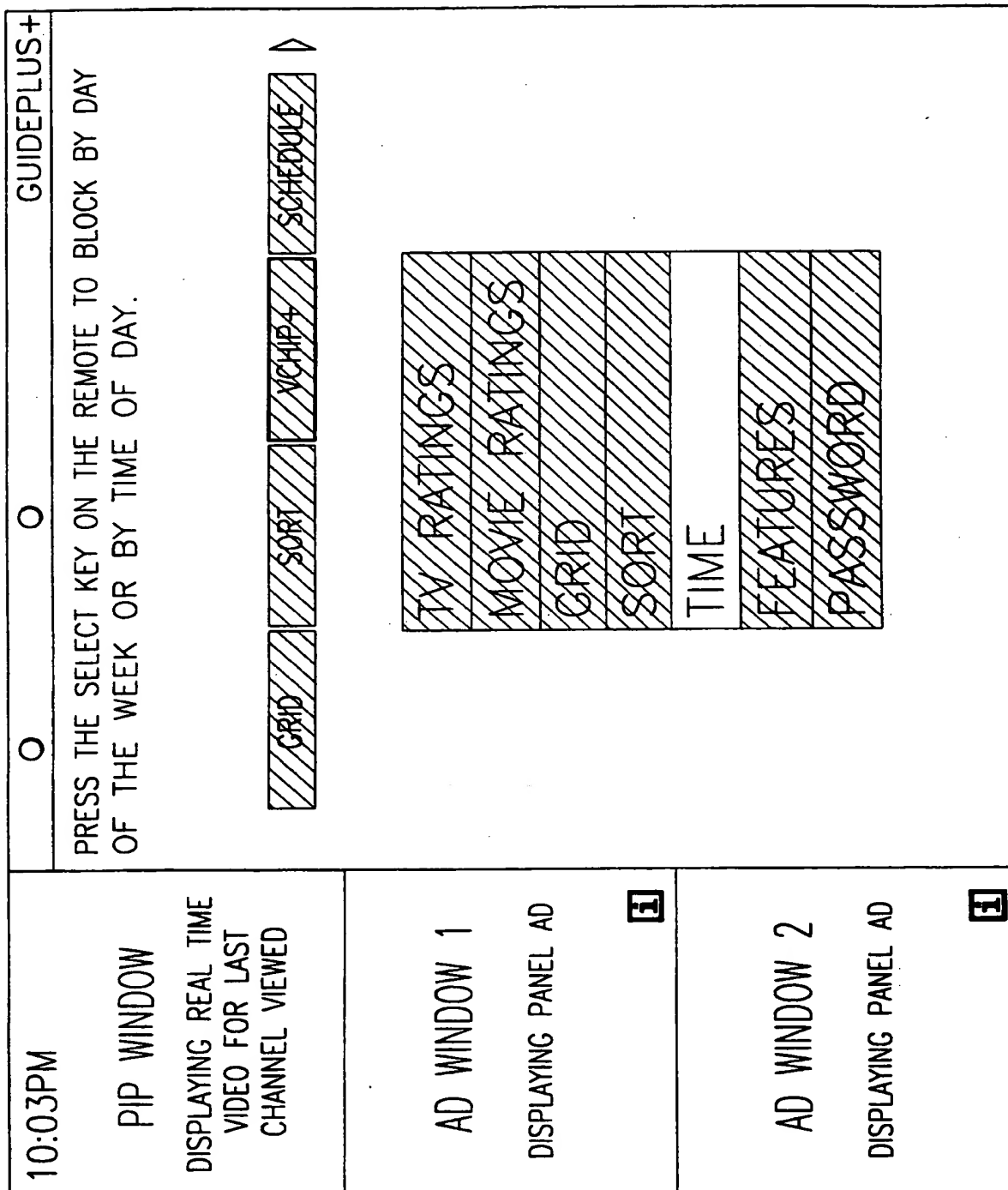




FIG. 58

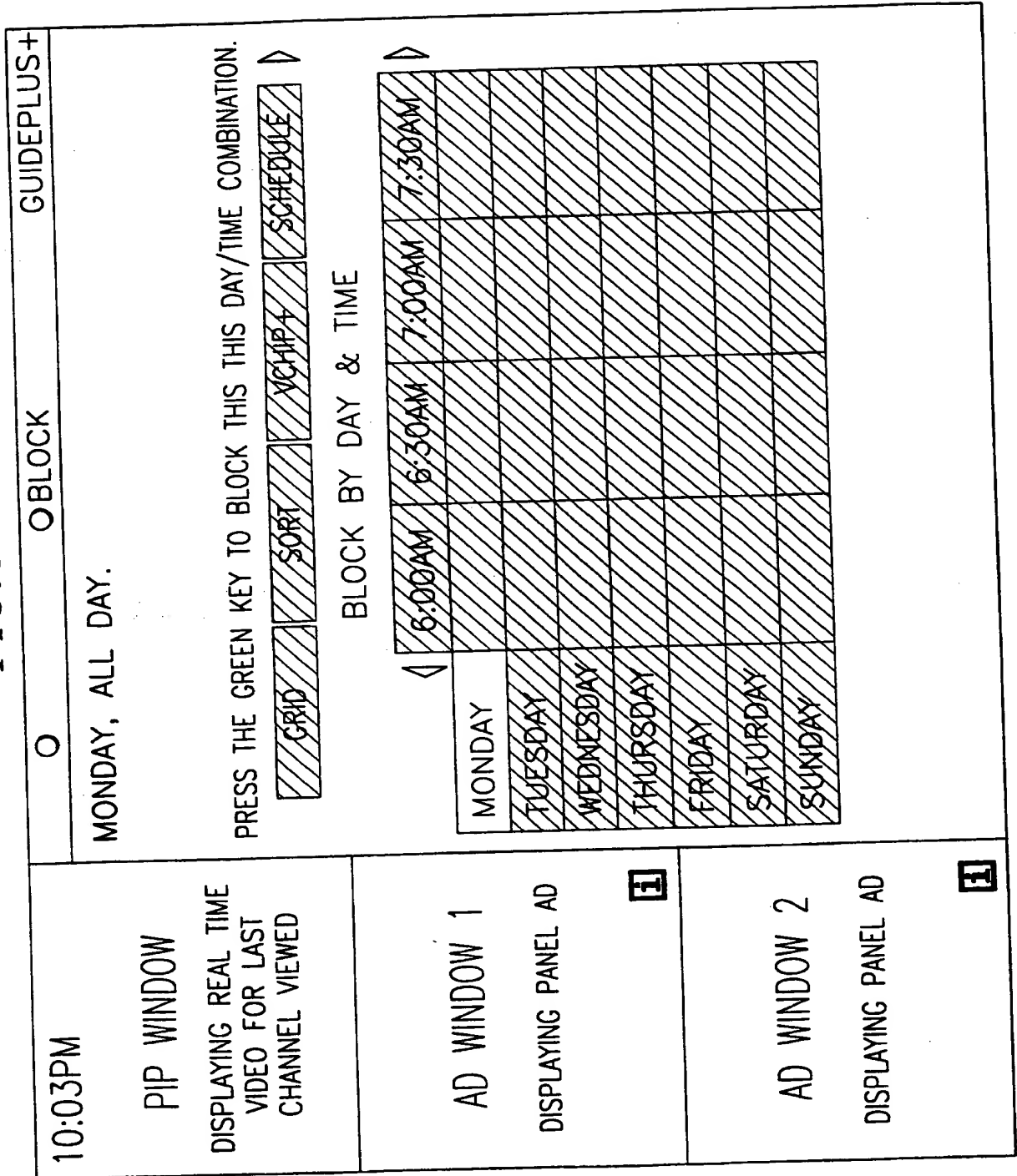


FIG.59

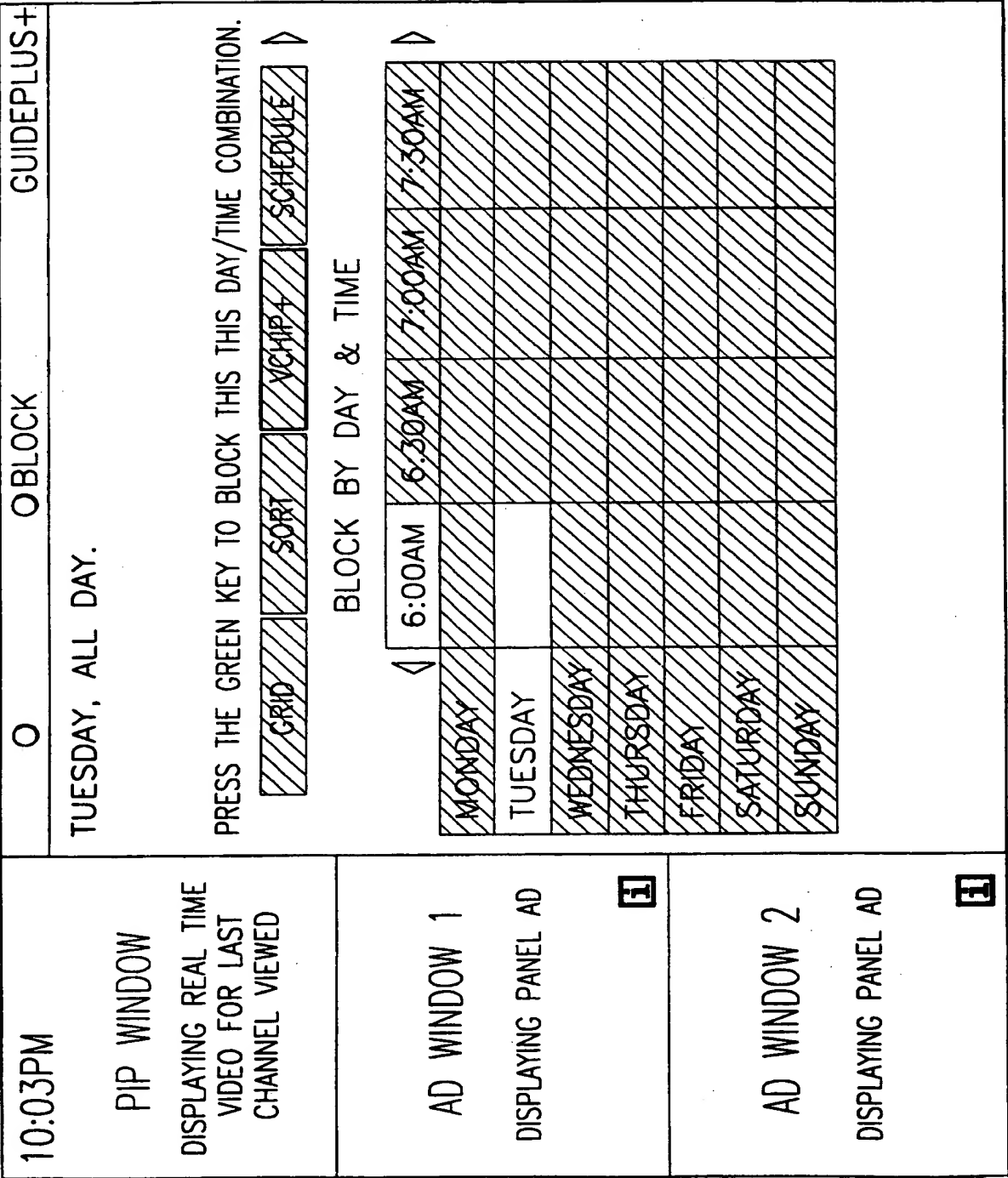


FIG. 60

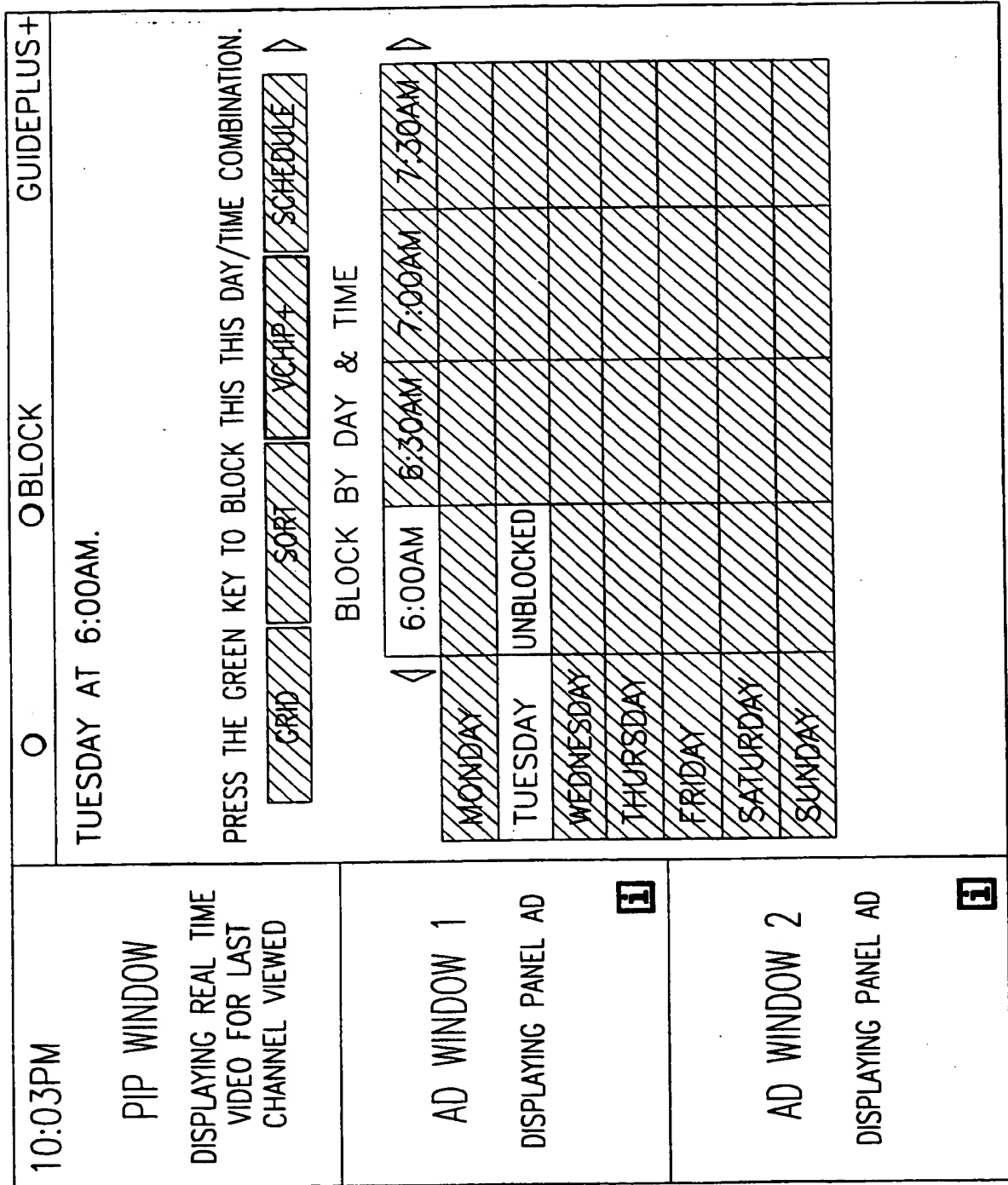


FIG. 61

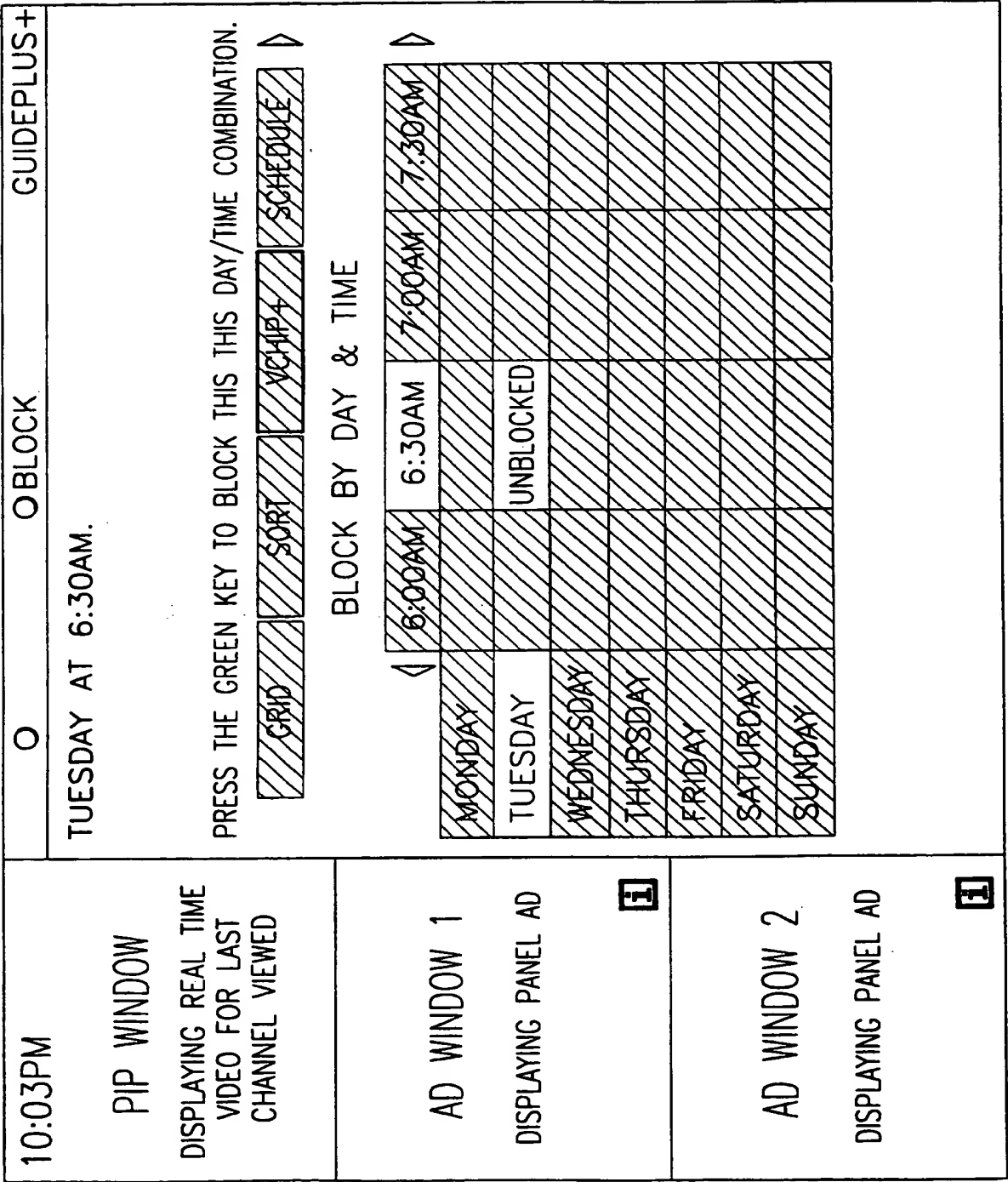


FIG. 62

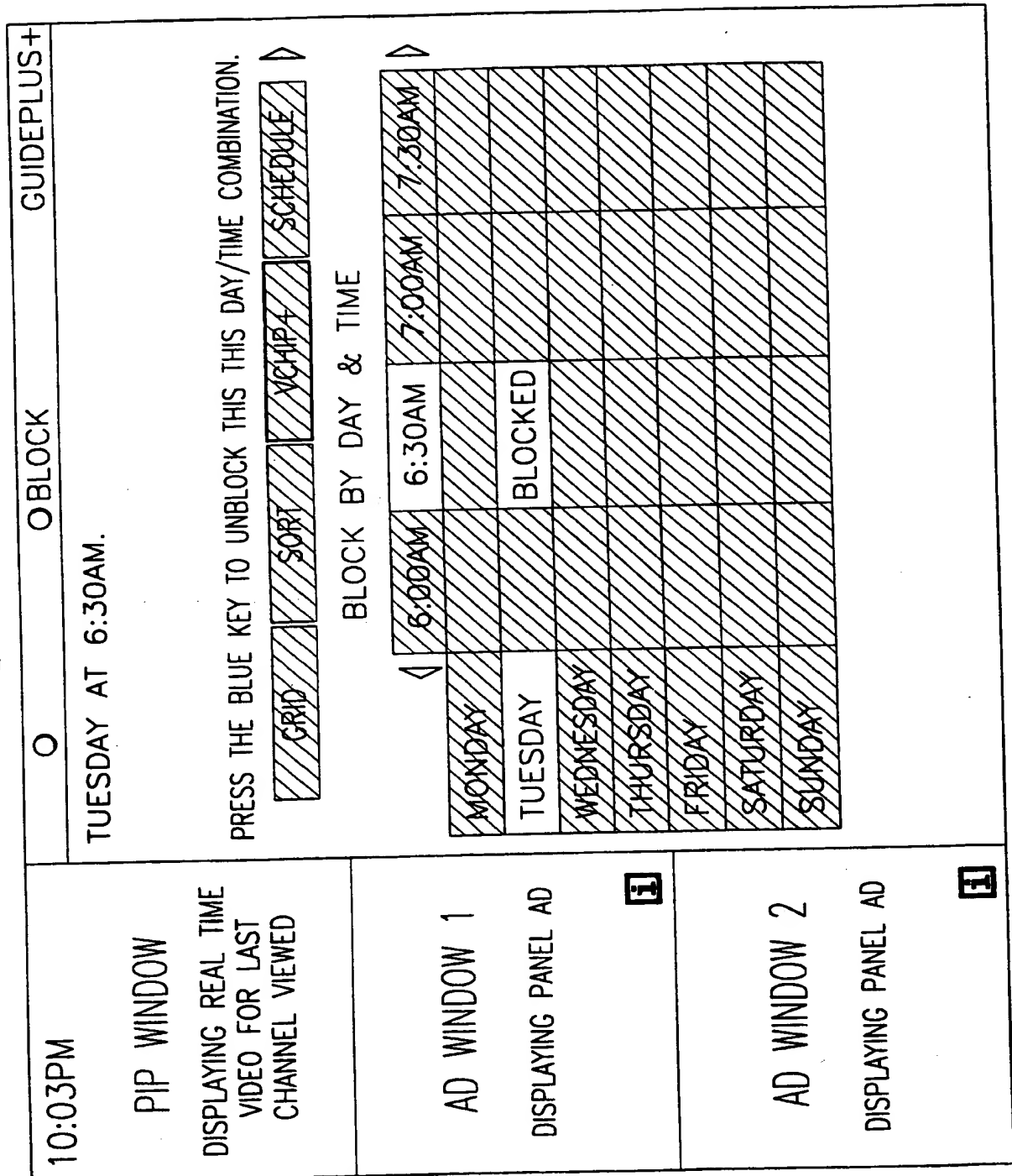


FIG. 63

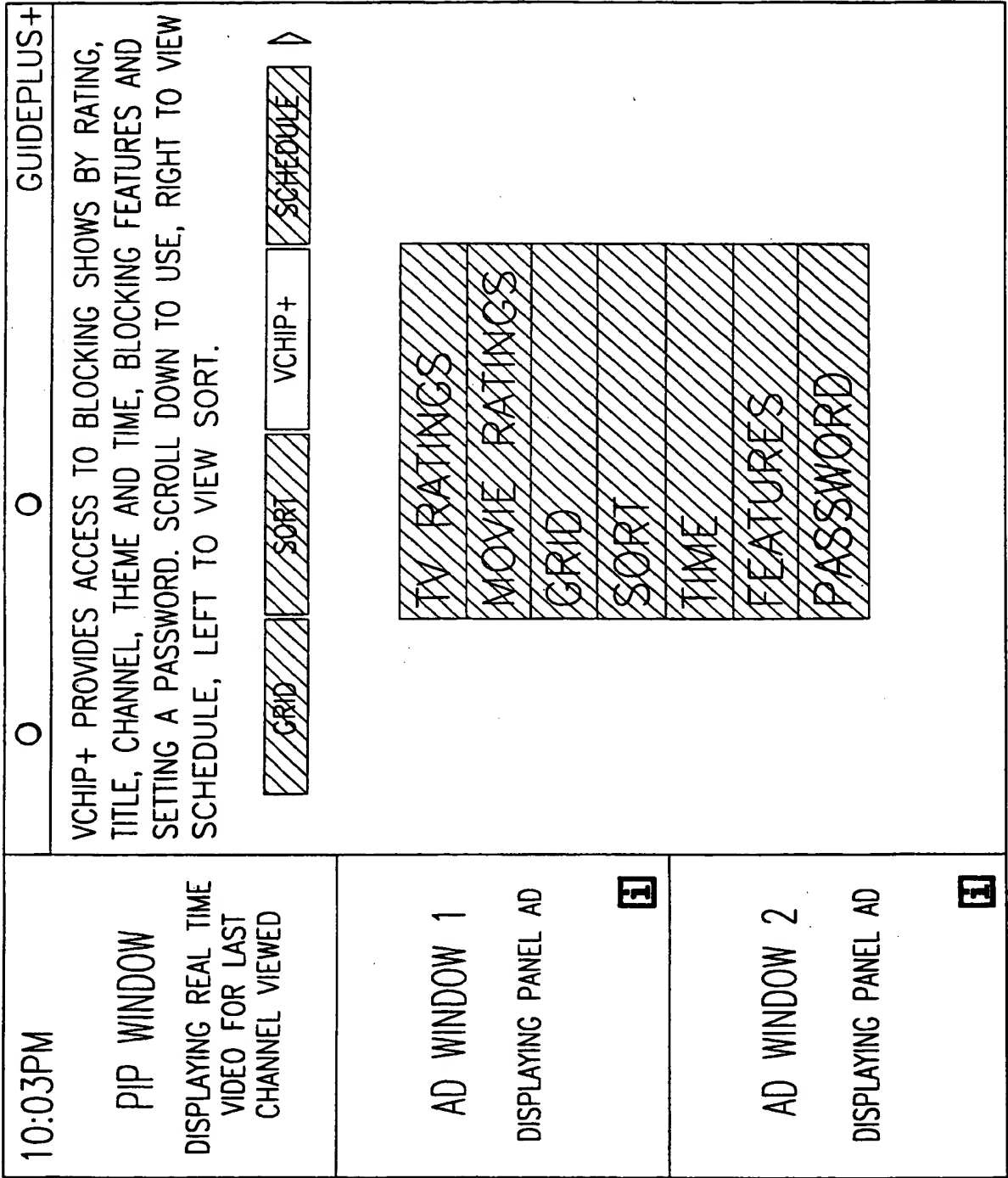
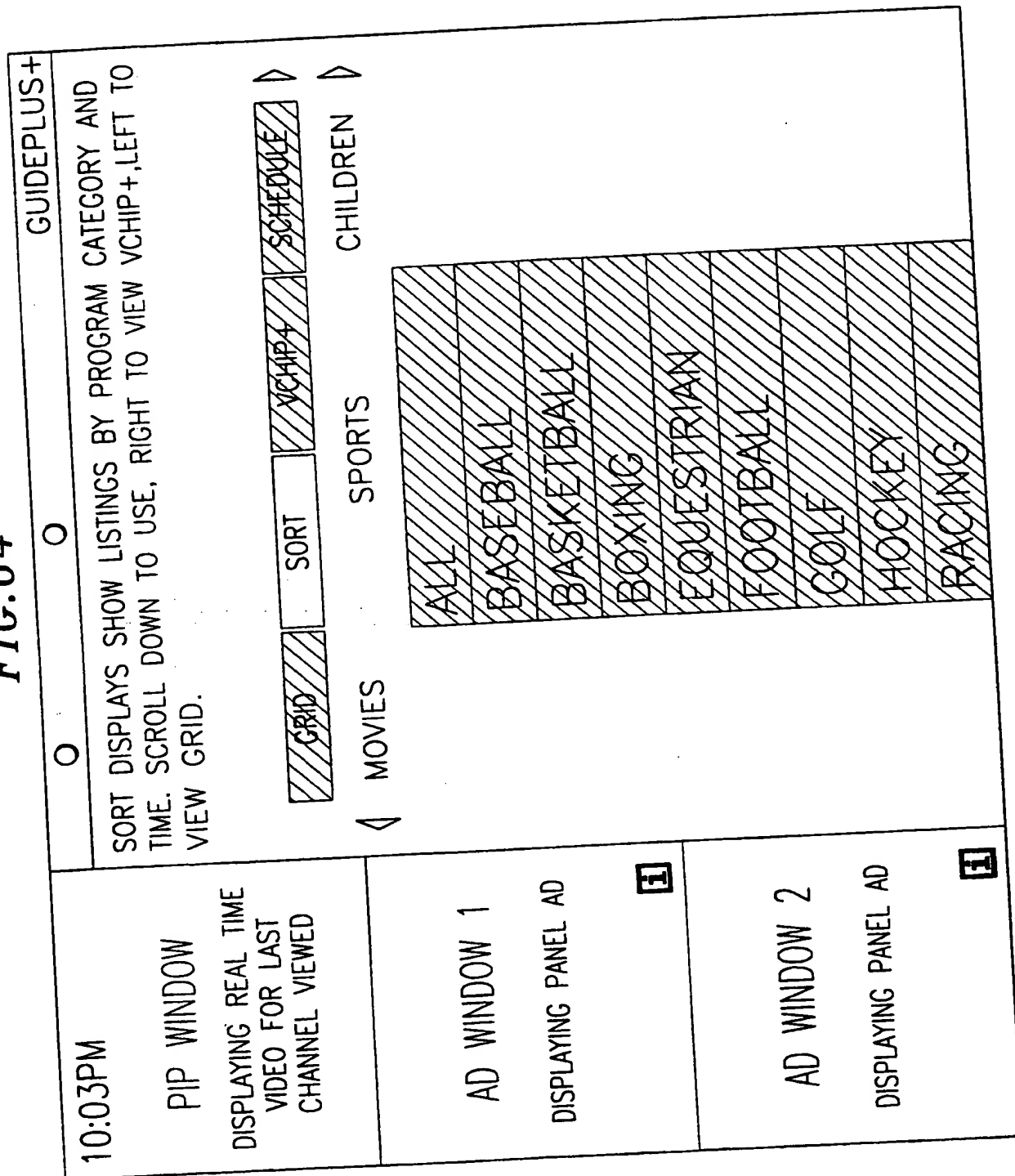






FIG. 64



65/69

FIG. 65

10:03PM		OWATCH		ORECORD		GUIDEPLUS+																			
PIP WINDOW DISPLAYING REAL TIME VIDEO FOR LAST CHANNEL VIEWED		GRID DISPLAYS SHOW LISTINGS BY CHANNEL AND TIME SCROLL DOWN TO USE, RIGHT TO VIEW SORT.																							
		CBS[4]		10:00PM(1HR)		cc 																			
		<div> <div>GRID</div> <div>SORT</div> <div>VCHIP4</div> <div>SCHEDULE</div> </div>		<div> <div></div> </div>																					
		SAT		10:00PM		10:30PM																			
		<table border="1"> <tbody> <tr> <td>LAST CHANNEL</td> <td>WALKER, TEXAS RANGER</td> </tr> <tr> <td>ABC</td> <td>PRIMETIME LIVE</td> </tr> <tr> <td>FOX</td> <td>COLUMBO</td> </tr> <tr> <td>CBS</td> <td>WALKER, TEXAS RANGER</td> </tr> <tr> <td>UPN</td> <td>WALKING TALL NEWS</td> </tr> <tr> <td>PBS</td> <td>ON GOLDEN P... JUST UP ROAD...</td> </tr> <tr> <td>CBC</td> <td>MOLSON HOCK... COMICS!</td> </tr> <tr> <td>AMC</td> <td>YOUNG PHILADELPHIANS</td> </tr> <tr> <td>ESPN</td> <td>COLLEGE FOOTBALL</td> </tr> </tbody> </table>						LAST CHANNEL	WALKER, TEXAS RANGER	ABC	PRIMETIME LIVE	FOX	COLUMBO	CBS	WALKER, TEXAS RANGER	UPN	WALKING TALL NEWS	PBS	ON GOLDEN P... JUST UP ROAD...	CBC	MOLSON HOCK... COMICS!	AMC	YOUNG PHILADELPHIANS	ESPN	COLLEGE FOOTBALL
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ESPN	COLLEGE FOOTBALL																								
AD WINDOW 1 DISPLAYING PANEL AD																									
AD WINDOW 2 DISPLAYING PANEL AD																									



66/69

Show Blocked by VChip Plus+

Please enter a password, then press the  
<OK> key.

— — — — —

OR

Press the Guide key to enter GUIDE Plus+.

Press the Ch+ or Ch- key to go to the next  
channel

Press <OK> to try again.

FIG. 66

Do you wish to establish a  
VChip Plus+ Master Password?  
This will enable you to block shows by  
rating, time, channel and program title.

Yes  
No

67/69

You may set up a VChip Plus+ Master Password at any time by entering GUIDE Plus+ and selecting the VChip Plus+ password screen.

FIG. 68

Password Creation  
Please create a password by inputting  
a 3 to 7 digit number using the  
number keys on the remote.  
Choose something that you will not forget.

\_\_\_\_\_  
Input only zeros if you wish create a  
password later  
Press <OK> when finished.

68/69

Password Confirmation  
Please repeat your password using the  
number keys on the remote.

— — — — —  
Input only zeros if you wish create a  
password later.  
Press <OK> when finished.

FIG. 70

Password Accepted  
Please be sure you do not forget your  
password.

Press <OK> to exit.

FIG. 71

69/69

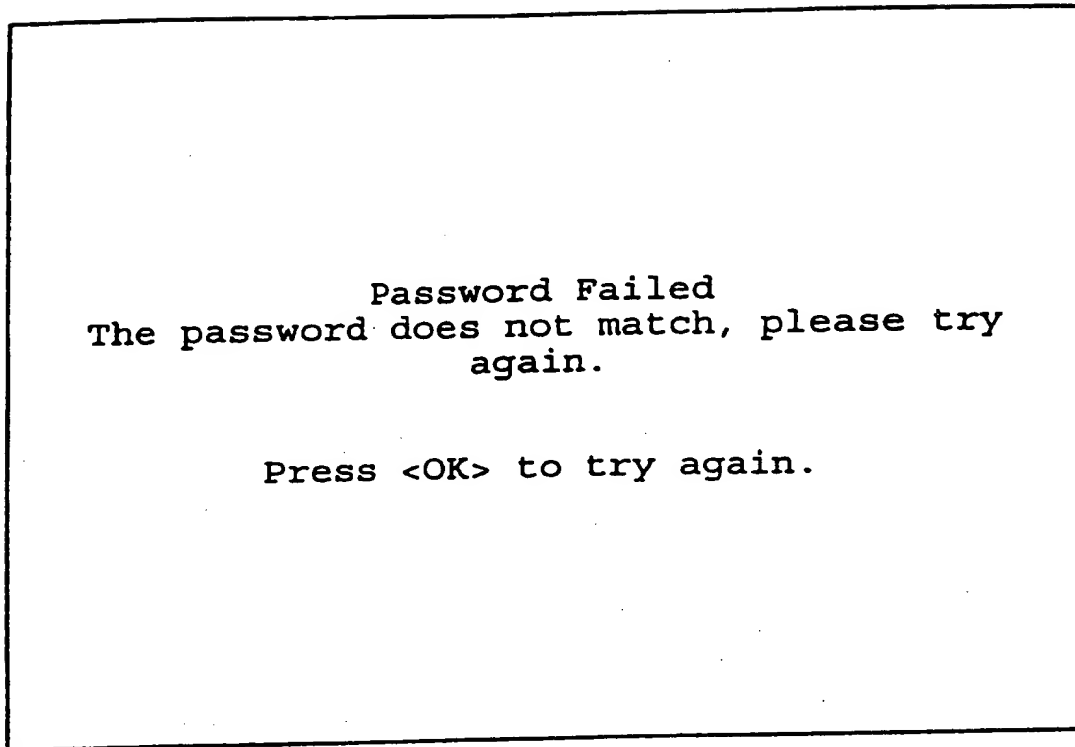


FIG. 72

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US99/04133**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(6) :H04N 7/10  
 US CL :345/327; 348/5.5, 10, 906; 455/6.2  
 According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 345/327; 348/5.5, 10, 13, 906; 455/4.2, 6.2, 6.3

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,485,518 A (HUNTER et al) 16 January 1996, see whole document.	1-41
Y	US 5,550,575 A (WEST et al) 27 August 1996, see whole document.	1-41
Y	US 5,583,576 A (PERLMAN et al) 10 December 1996, see whole document.	1-41

☐ Further documents are listed in the continuation of Box C.
 ☐ See patent family annex.

* Special categories of cited documents:	*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
*A* document defining the general state of the art which is not considered to be of particular relevance	*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
*B* earlier document published on or after the international filing date	*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	*A* document member of the same patent family
*O* document referring to an oral disclosure, use, exhibition or other means	
*P* document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

18 MAY 1999

Date of mailing of the international search report

08 JUN 1999

Name and mailing address of the ISA/US  
 Commissioner of Patents and Trademarks  
 Box PCT  
 Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JOHN W. MILLER

Telephone No. (703) 305-3900

Joni Hill

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